JUNE 17 1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

● **There's more optimism than pessimism in the outlook for the remainder of 1960. The brightest note is that surplus inventories may be worked off by fall. Drilling will perk up some. And competition for markets will be keen 27**

● **The U.S. crude potential may total 90-billion bbl. with the use of improved recovery methods 32**

● **Restriction of multiple well completions brings confusion to Louisiana operators 48**

● **Vinyl-coated metals are increasing the markets for petrochemicals as auto finishes 68**

● **Atlantic Refining saves $1.3-million annually by reducing losses from evaporation 76**

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NEW DOWELL DEVELOPMENTS PERMIT BETTER FRACTURING RESULTS THAN EVER BEFORE

Oil producers—both major and independent—are profiting from recent Dowell developments in fracturing techniques, services and products. These new developments help operators get greater well improvement at a lower cost than they could have expected just a few months ago.

Dowell engineers also use the Frac Guide* in conjunction with these new developments to help operators get the highest possible success ratio and the fastest possible payout from their frac jobs.

In San Juan County, New Mexico and *Noble County, Oklahoma,* Dowell engineers have reported the successful use of a new technique—using Abrasijet* for perforating, a retrievable bridge plug, and multiple fracturing in a single trip of the tubing to cut the cost of fracturing several zones. *Important savings have resulted.*

In Coshocton County, Ohio, Henderson County, Kentucky, and in other areas, the successful use of Rockshock* to initiate fractures has been reported. This Dowell-developed service, using *implosion* capsules, has made possible the successful fracturing of dense, tight formations that previously could not be fractured.

From Howard County, West Texas, San Juan County, New Mexico, and many other areas come reports about Slick Water. This Dowell-developed agent greatly reduces friction. For the first time, *it is practical to perform relatively high-injection-rate fracturing down tubing.*

Before you treat another well, you owe it to yourself to get full information on recent Dowell developments. For prompt service, or detailed information, *dial Dowell.* Dowell services and products are offered from more than 150 locations in the United States, Canada, Venezuela and Argentina. Dowell, Tulsa 1, Oklahoma.

*DOWELL TRADEMARK

Services for the oil industry

DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY

New station sign, featuring the name in red and the dinosaur in green, is being installed at Sinclair outlets in 36 states.

The Return of the Dinosaur!

The dinosaur, long identified with fine crude oil, is returning to Sinclair dealer stations.

This new sign is a symbol of the finest in petroleum products.

It is the symbol adopted by Sinclair Refining Company, the Company that supplies nearly one-half of the aircraft oil used by major scheduled airlines in the U. S.; that fuels and lubricates more than 150 American railroads; that was called upon to supply special lubricants for America's satellite launching rockets; that has behind it 44 years of manufacturing and research achievement.

The new sign is also a symbol of Sinclair's acceptance in the market place, where its 25,000 independent dealers enjoy the loyal support of millions of discerning motorists.

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INSIDE Slant

FPC DELAYS HIKE COSTS

The unreasonable delays of the Federal Power Commission threaten the existence of the independent gas producer, and in the long run will prove costly to the consumer.

Ralph Walton, president of Sparta Oil Co., Houston, stressed the cost of these delays in a recent letter to President Eisenhower.

He used the experience of his company as an example.

The hearing in which his firm is involved started a year and four days after the initial application for permission to sell gas was filed.

The hearing proceeded for five days and then recessed for five weeks. The excuse: A staff member of the commission was going away for his summer military training.

Some 75 producers, two pipeline companies, and the consumers who need the fuel had to wait, according to Walton.

What are the costs of the delay?

In answering this question, Walton assumed that the 75 producers had invested $75-million to develop the gas properties. He wrote that the current interest rate would result in a cost of $432,769, which, he stressed, is not all the expense.

LeRoy Menzing
Editor

engine power
BY CATERPILLAR

UP GO HORSEPOWER

Turbocharging plus aftercooling now mean even more engine

Add a turbocharger and aftercooler to Cat Natural Gas Engines and you get 90 more horsepower on the G397 . . . now rated at 560 HP. You get 70 added HP from the G375, or a total of 380. The Cat G342—industry pacesetter for low operating cost and low purchase price—is up from 235 to 280 HP. All ratings are *continuous*. And remember, you don't derate Cat Natural Gas Engines. They're built for tough diesel service, then modified for lighter gaseous fuels.

WHY NO DERATING

You may remember when all naturally aspirated engines —diesel *and* gas—were derated to 65%-80% when they were converted to gaseous-fuel operation. And with good reason. But Caterpillar's investment of years of study, millions of research dollars and, the technological advances in materials and technique that have resulted, make derating no longer necessary.

Even today, engines employing soft crankshafts and bearings, with only medium load carrying ability, must still be coddled when you talk rating.

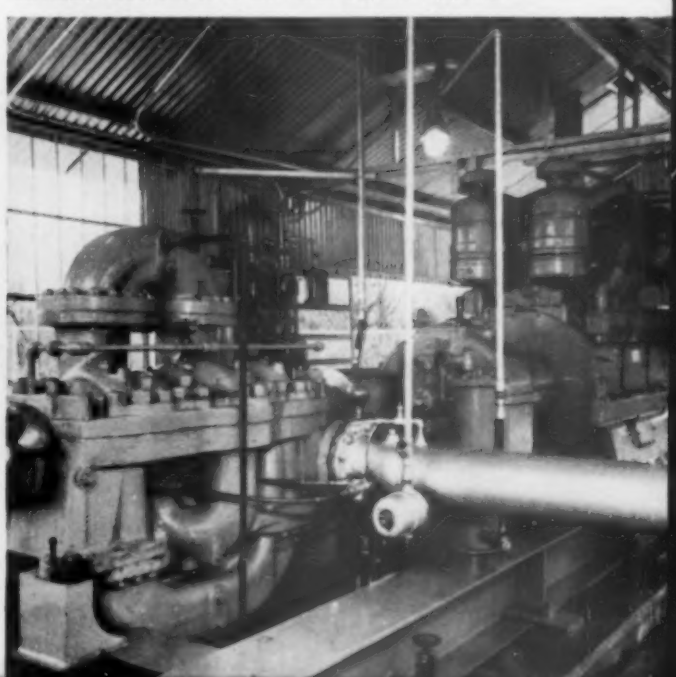
Cat Diesels, for instance, proved that they could carry the load under 15:1 compression ratio with a manifold pressure of 55 inches of mercury (absolute). Natural gas engines have less demanding compression ratios and a manifold pressure of roughly half that for diesels—or about 28 inches of mercury (absolute). You can see from this that Caterpillar bearings are well under load design limits for natural gas service.

STRONG AND THEN SOME

Because Caterpillar puts a wide margin of safety and service into its diesels, you have a lot of insurance against stress in the natural gas version. Heat treating, special machining, and the materials we use in our crankshafts and bearings are just 3 reasons for this added stamina. For instance, in cranks we use a selected alloy steel, processed to our specifications. We harden journals to Shore 54-62, approximately .150 inch deep, and superfinish them with microhoning. All fillets have large radii and are carefully ground and polished. We statically *and* dynamically balance *all*

Vanson Production Corporation chose a G342 to power this 8¼ x 13 Worthington compresser, upon recommendation and engineering data furnished by the fabricator, Ingersoll Mfg. Co., Inc., of Shreveport, Louisiana.

This G397 powers an Ingersoll-Rand pump at Tyler, Texas, for Texas Eastern Transmission Corporation. The unit pumps 1000 barrels per hour of kerosene, fuel oil, gasoline and jet fuel from Tyler to Carthage, Texas, and on to the "Little Big Inch" pipeline.



RATINGS FOR CAT NATURAL GAS ENGINES

when you specify a Cat Natural Gas Engine. And they're still the world's lowest cost power producers...

crankshafts to smooth away vibration. Torsional vibration dampers reduce torsion stresses to low levels.

CONSTANT IMPROVEMENT

Over ten years ago, we proved that babbitt hadn't the heart for carrying the load in then-current diesels. Neither did copper-lead. Our solution was aluminum bearing materials which resulted in bearings that some experts call the most successful on the market today.

We do even more to build-in staying power. Cylinder liners are full length and water cooled. They're "Hi-Electro" hardened to a depth of approximately .060 inch to a Rockwell C47-55. Permanent mold aluminum pistons that have a wear-resistant, cast-in iron top ring band are used in Cat Engines. The oil-jet cooling on the underside of the piston head and the piston design itself are made for the rigors of diesel rather than the less strenuous natural gas use.

EITHER WAY YOU CHOOSE

The net result of all of Caterpillar's extra design and construction is a natural gas engine of exceptional performance ability. Not only is it the most engine . . . it's the most value. Cat Natural Gas Engines are the world's lowest cost power producers. No matter how you buy—on price or performance—your best buy is Caterpillar. We realize we can't answer all of your questions in just this space, nor can we provide all of the information you need in order to completely evaluate Cat Natural Gas Engines for your oilfield work. Write us for a copy of "Cat Natural Gas Engines." Or, if you would prefer, call in your Caterpillar Dealer before you buy your next engine. Remember, too, to specify Cat power in new oilfield equipment.

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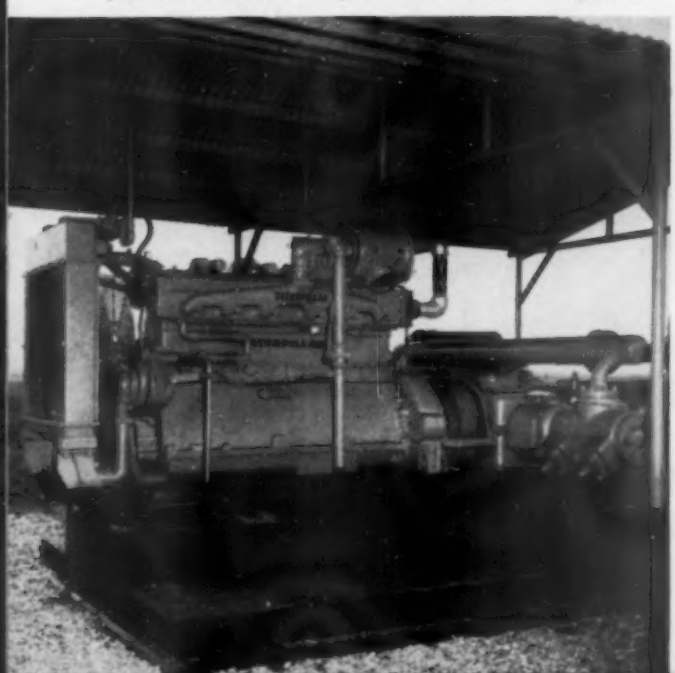
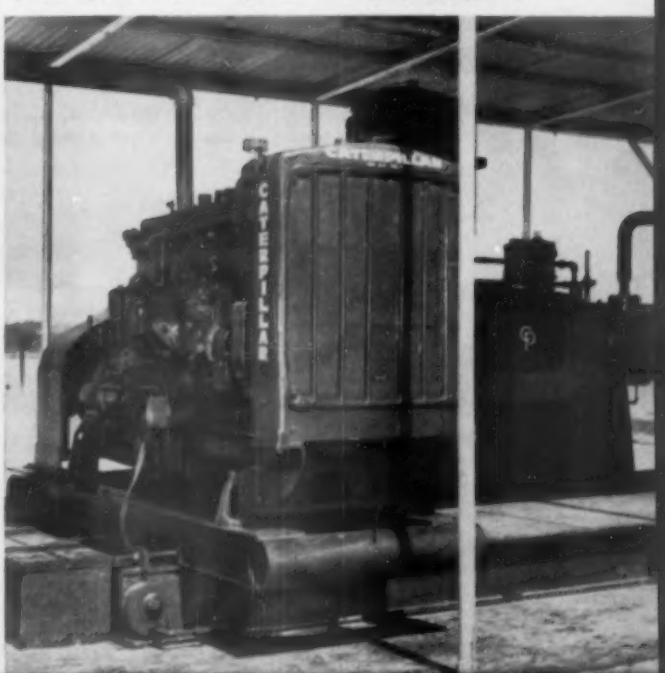
Engine Division, Caterpillar Tractor Co., Peoria, Ill., U. S. A.

A Caterpillar Natural Gas G342 handles 1,500,000 cubic feet of natural gas per twenty-four hours at booster station operated by Texkan Oil Co., near Alice, Texas. The 7.5:1 compression ratio pistons were selected for operation on available field gases.



Northern Pump Co. of Minneapolis, Minn., powers a Chicago Pneumatic compressor with this Caterpillar G342. This unit puts 1¼ million cubic feet per twenty-four hours of excess gas from four producing wells into an injection well near Beeville, Texas.

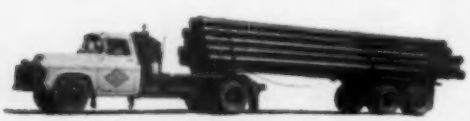


Congrats and $25 for this quip to J. P. Denny, Phillips Petroleum Company, Box 1351, Odessa, Texas

Oil and gas men are quick to say that Lone Star products are "tough, top quality and delivered fast". Quick supply, and superior steel are among the reasons more and more have switched to Lone Star API casing, tubing and line pipe.

Exacting quality control combined with years-ahead manufacturing techniques today . . . are your guarantee of API standards in Lone Star pipe. And remember, delivery in the field is a matter of hours.

Neighbor, wherever you are, specify Lone Star and we both get a good deal.



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DEPT/Opinions

Views That

"If we put Aramco and the American investors in the Near East on the basis that they will be taxed 52% of what they have left, after they have paid 52% to Arabia, it will be a great deal more profitable for Shell, which is a foreign-owned company, to buy them out. . . . The other foreign investors will buy out the American investors and we will not get 5¢ from the money."

—Russell B. Long
U.S. Senator from Louisiana

"Instead of seeking to provide opportunity for all, we have tried to legislate [opportunity's] end product—security—into existence, as if this might be done by some sort of magic in which sweat, ambition, and ability can be dispensed with."

—Morgan J. Davis
President
Humble Oil & Refining Co.

"People's minds seem to fall into one of two classes. There's the humanistic mind—which is interested chiefly in people and words. Then there's the scientific and engineering mind—which is interested mainly in things and ideas. Men naturally gravitate to professions which best fit their turn of mind. They don't bother much with knowledge that doesn't interest them or that isn't useful in their work. This is an old evil, which seems to be getting worse."

—H. W. Fisher
Director
Standard Oil Co. (N.J.)

. . . and Letters

Dear Sir:

Like so many articles in Petroleum Week, I thought "Too Much, for Much Too Long" [PW—May27 '60,p20] excellent. It was factual, timely, forthright, and courageous.

T. Rieber
Chairman
Barber Oil Corp.

Dear Sir:

First let me say that I have enjoyed the "Petroleum Comments" articles in Petroleum Week. They bring to me an over-all view which I do not get in my job as an engineer working in one phase of a large industry.

In reference to the oversupply problem in your article "Too Much, for Much Too Long," there is one aspect to which neither you (nor any other writer that I have seen) has referred.

Make News . . .

And that is that oversupply is probably one of the best things that has happened to the human race for a long time.

Petroleum is energy, and the use of energy is roughly parallel to what we call a standard of living. So we can look forward to a lot of people all over the world having available to them cheap, dependable energy. Their standard of living is bound to go up.

As to control of production, some system is bound to evolve. It will take time. Almost no one wants a "fat-cat" system, and no one really believes that such a system can come to be. The energy must be available for use at the cheapest cost possible. So to devise a system where the profit motive will be the mainspring—supplying the drive, but not the balance wheel—will take a lot of doing.

To compare this with the diamond cartel is not valid. Lots of people have never seen a diamond, and if diamonds should cease to exist, it would make little difference in our lives. But very few have never seen a gasoline motor.

DONALD V. WILLARD
New York

Dear Sir:

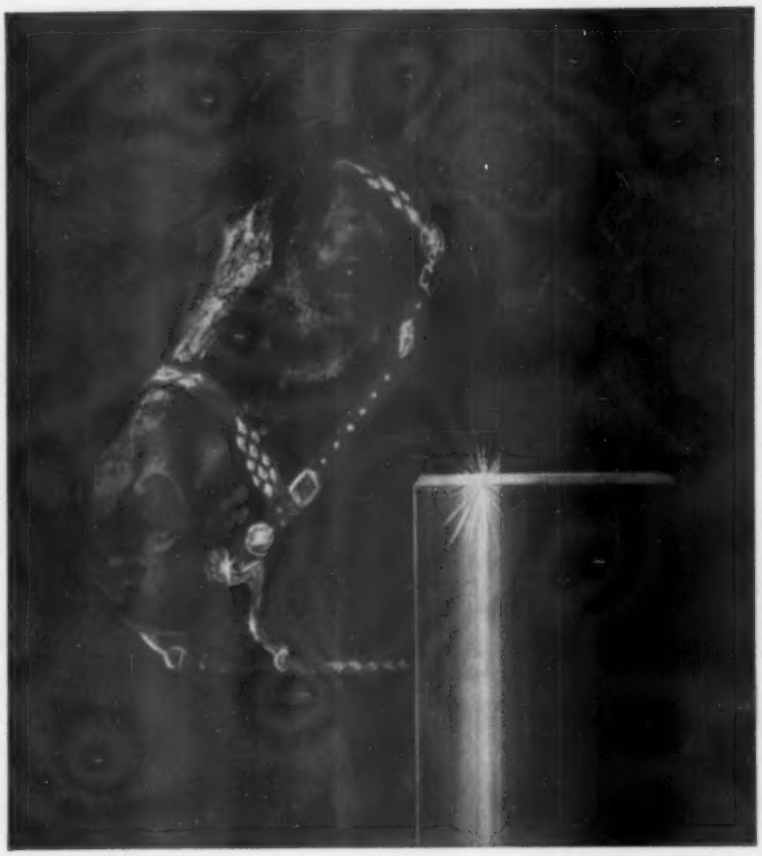
Noting your comments in the Inside Slant "Something To Consider" [PW—May27'60,p3], regarding the petroleum industry imports, wherein you are concerned about the change of administration, please be advised that the import control is more vital to the major companies, and if this import control is eliminated then there must be a tariff to control this situation.

Thousands of men are out of work in this country because of imports, and it will get much worse if the government allows these imports to come into the country without any control. No true picture has ever been given by the Administration as to the actual amount of oil now being imported into this country. This is a major oil company problem and not an independent.

JAY KORNFELD
Independent operator
Wichita, Kan.

Dear Sir:

I have just finished reading "Petroleum Comments" on world oversupply. I am unable to understand how a publication of the stature of PETROLEUM WEEK would give such prominence on its front cover, as well



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"MAINTENANCE DOLLARS BECOME PROFIT DOLLARS— WHEN YOU SPECIFY DU PONT PAINTS!"

Jack Graham ought to know. As a member of Du Pont's special Technical Service Group, he's seen his recommendations pay off in terms of long-range cost reductions and job satisfaction for a variety of clients. Says Jack:

"Profit dollars are hard to come by. That's *one* reason Du Pont's systems of maintenance painting can be so important to *your* operation. We help you turn maintenance dollars into profit dollars. For instance, at a normal profit margin of 5%, $50,000 in savings—made possible by top-quality Du Pont finishes and technical assistance—is equivalent to the profit on an extra $1,000,000 of sales!

"Naturally, to realize maximum return on your maintenance dollar, quality paints are a *must*. Too many maintenance men have discovered, belatedly, that initial purchase price is an inaccurate determinant of value. Equally important are such factors as applied cost and job life. Which brings us to *another* reason why Du Pont paints are so often specified.

"You see, we spend enough time in your plant, examining equipment and conferring with maintenance personnel, to get a thorough understanding of your particular problem. Then we help you develop a step-by-step program geared to achieve maximum protection against every corrosive condition—*at lowest cost per square foot per year.*"

If you have a maintenance problem you'd like to talk over with an expert, there's a man like Jack Graham—skilled, experienced, a "pro" in his field—ready to serve you. Just call your local Du Pont district sales office. Or write: E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Dept. PW-66, Wilmington 98, Delaware.

* * *

Trained as a chemical engineer, J. A. Graham joined Du Pont 15 years ago. Since then, he's devoted his time and talents to becoming a specialist in the field of industrial maintenance painting. In Detroit, Cleveland, Los Angeles and Philadelphia, he's helped solve problems of paint maintenance for the automotive, aircraft, steel, petroleum and marine industries. Now Eastern District Manager, Industrial Maintenance Sales, Jack is a member of the Corrosion Engineers Society.

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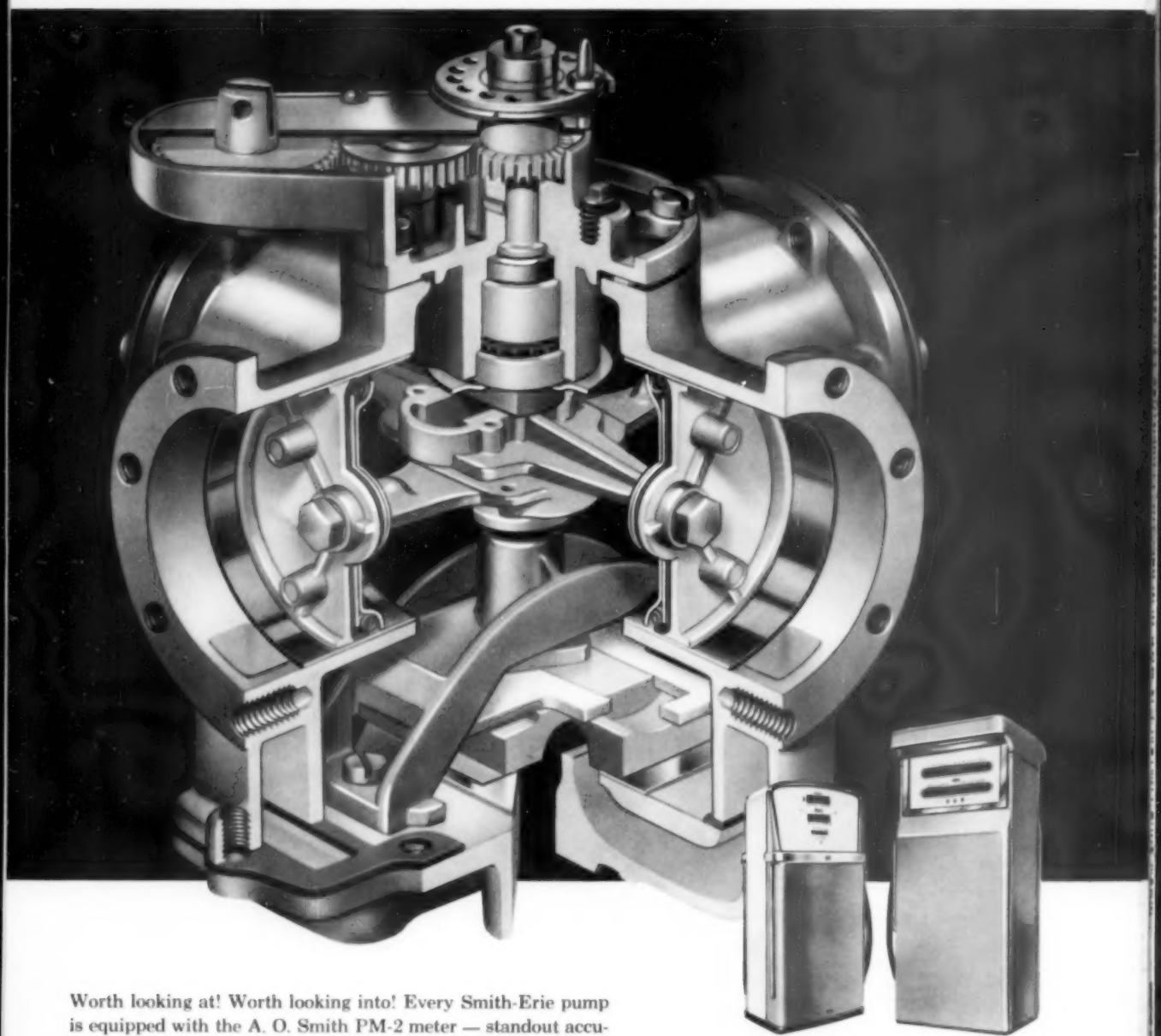
A MOMENT'S REFLECTION will remind you that gasoline pumps are the most looked-at equipment in any service station — and the pumps that put your best foot forward, for styling and accuracy, are **Smith-Erie**

Heart of every Smith-Erie pump is the famous A. O. Smith PM-2 meter



Worth looking at! Worth looking into! Every Smith-Erie pump is equipped with the A. O. Smith PM-2 meter — standout accuracy regardless of flow rate or pressure. Quality-built for longer life, the PM-2 features hard-rolled, stainless steel liners . . . heavy-duty stainless steel ball bearings . . . cast aluminum alloy body members . . . permanent mechanical seal . . . self-lapping valve seat. And self-purging design disposes of water and sediment — reduces profit-robbing maintenance to a minimum.

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2 great pumps to serve you better

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A Nalco PRODUCT MANAGER

Answers Questions About Refinery Equipment Fouling And Successful Anti-Fouling Programs

Both Organic and Inorganic Deposits in Refinery Equipment Raise Operating Costs, Decrease Throughput

Corrosion control, desalting, oxygen scavenging, gas blanketing and adjustment of process variables will help to reduce exchanger fouling—but in many systems, fouling continues to cause trouble. Here are some of the questions that are asked, and the answers we had to find to them in order to develop anti-fouling programs of real value to refineries.

Question: What causes fouling in refinery systems?

Answer: Inorganic salts, corrosion products and organic polymers. Inorganic salts are carried into exchanger trains by water dispersed in the hydrocarbon, and deposit out as the water is vaporized on heating. Corrosion products may be carried into exchangers from other units, or corrosion may occur in the exchangers themselves. Organic polymers are insoluble, polar, high-molecular-weight materials, formed as the hydrocarbon is heated.

Question: Where does fouling occur?

Answer: Fouling may occur in virtually any part of a refinery system; however, these are the areas where fouling is usually most troublesome: heat exchangers and furnaces ahead of catalytic and thermal cracking units, reforming units, and crude units, fractionating towers, reboilers and overhead condensers. Types and amounts of deposits vary, depending on the charge stock, corrosion control measures, and process variables.

Question: Why is an anti-fouling program necessary?

Answer: Because of the high cost of processing in fouled equipment, created by: reduced heat transfer; lowered throughput; downtime; and direct cleaning costs.

Question: How does Nalco solve fouling problems?

Answer: By making a careful analysis of the system, locating units where fouling occurs, and finding the sources of fouling. When these facts are available, recommendations are made for an anti-fouling program.

When the program is in operation, Nalco field representatives maintain close contact with operating personnel, cooperating to secure continuously successful, economical results.

Question: What is Nalco's anti-fouling program?

Answer: It is a program designed for a specific refinery system to eliminate corrosion, organic polymer formation, and any other sources of fouling. Where fouling is due to potential deposit-forming materials in charge stocks, Nalco-developed chemicals are recommended to stabilize and disperse these materials.

Usually anti-fouling additives are used in combination with Nalco corrosion control chemicals; and, where indicated, following Nalco desalting chemicals.

R. C. Canapary, Product Manager, Petroleum Industry Chemicals Department, Nalco, is a Doctor of Chemical Engineering, whose experience includes technical and engineering work at Nalco, as well as several years with a major oil company.

The assistance of Nalco representatives in regularly recording and evaluating the effects of temperatures, heat transfer rates, pressures, and other process variables helps to assure optimum results in operating efficiency and treatment economy.

Research and development work is a continuing part of the Nalco anti-fouling program. Nalco researchers use specially-designed equipment to simulate plant operations. Conditions can be established to accelerate fouling rates and speed development of promising new chemicals.

Question: How long does it take to establish the Nalco anti-fouling program?

Answer: A Nalco anti-fouling program can begin promptly at your request. Nalco considers a program established when anti-fouling and corrosion control results are proven satisfactory.

The electrical resistance method of corrosion evaluation, corrosion coupons, iron-in-water tests, operating records (temperature, pressure, heat transfer coefficients) and direct inspections should be used to evaluate the program's effectiveness.

Suggestion: Get full details on a Nalco anti-fouling program for your operation. For quick action, call your Nalco Representative, or write to me at Nalco: Dr. R. C. Canapary, Product Manager, Petroleum Industry Chemicals Department.

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Macks are the muscles of the oil fields. Here one of Bill Hodges' B-61 Model Macks places heavy machinery at drill site. Rutted, muddy footing is taken in stride because **Mack oil field trucks are built for oil field work.**

MACK for over 7 straight years NO. 1 by far in sales of diesel trucks

Oil field trucker Bill Hodges says

"We use the best equipment we can buy"

"It doesn't pay to fool around with 'bargain' equipment in the oil fields," says Bill Hodges, head man at the Oklahoma City trucking company that bears his name. "Hundreds of rig moves have taught us the value of quality equipment. From trucks on down, every piece of equipment we use is one grade – the best."

Bill Hodges Truck Co. operates dozens of Macks . . . has units to handle loads up to 160,000 lbs. Macks have the capacity, the power, the rugged strength and flexibility to deliver rigs, equipment and machinery where they're wanted, when they're wanted. Mack-built Thermodyne® engines—gasoline or diesel—are unexcelled for long life, dependability and fuel economy. Mack-built transmissions are available up to 20 speeds, and are built to accommodate power takeoff units. On 6-wheel units, Mack's Balanced Bogie with Power Divider allows Mack trucks to move the heaviest loads over the roughest oil-field terrain by automatically applying controlled torque to the axle with greater traction.

In oil field work where more is demanded of a truck, you'll get more out of a Mack. Your Mack branch or distributor will be glad to show you why. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario. 7714

MACK
FIRST NAME FOR
TRUCKS

Return visit to a sweet-running "package"

Here he is again—on one of his return visits—making sure that the unit is in top-running condition . . . providing the on-the-spot attention that Gardner-Denver oil field customers expect and get.

The Gardner-Denver Gas Compressor Specialist knows this installation because he was in at the start. Working from the petroleum engineer's specifications, he selected the right Gardner-Denver compressor . . . chose the cooling system, separators, controls and power unit. In short, he engineered a complete package—supervised assembly and field start-up. That's why it pays to consult your Gardner-Denver Petroleum Specialist for quality equipment backed up by genuine interest in the job it will do for you.

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER - DENVER

Gardner-Denver Company, Quincy, Illinois
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Western Conducts More Marine Seismic Surveys Than All Other Contractors Combined!

Every year since 1954, Western Geophysical Company boats have done well over half of ALL contract offshore seismic explorations in the world.

This record reflects the considered judgment of many of the most respected people in the petroleum industry on the competence of Western men, techniques and instrumentation. When you consider your next geophysical survey, let us tell you more about the Western services that have earned and held such confidence.

Western Gravity crews have conducted highly successful explorations in the waters of both hemispheres. Western's land seismic parties are at work on four continents.

Western

GEOPHYSICAL COMPANY

AND ITS AFFILIATES

Principal Office: 523 WEST SIXTH STREET · LOS ANGELES 14, CALIFORNIA

AFFILIATE AND REGIONAL OFFICES THROUGHOUT THE WORLD

as the two-page spread, to such irresponsible comment. Throughout these comments the author refers to the opinions of "the staffs of leading oil companies." The article refers to detailed studies prepared by "staffs of leading oil companies," and particularly to one study, thus leaving the impression that the conclusions are well-founded and authentic.

In my opinion, no staff of a major oil company could arrive at the conclusions set forth without recommending to management that the company immediately go out of business as soon as its business could be liquidated, while prices for properties are still reasonably good. This type of article tends to destroy all confidence in the future of the oil business, and I am certain it is contrary to the opinion and conclusions of most of the major oil companies.

The consensus of the experts appears to be that by 1970 world consumption will average 30-million b/d, and the world will be hard-pressed to produce and move this amount of oil into the market places of the world. This is not a guess, or a figure obtained by reaching into the air, but one arrived at by arduous study.

In my opinion, this type of article is a disservice to the oil industry and can serve no possible good whatsoever.

A. H. MEADOWS
Chairman
General American Oil Co. of Texas

Dear Sir:

I want to congratulate you on the Petroleum Comments column: "A Look Ahead: Too Much, for Much Too Long." It is high time that someone respected by the industry became forthright.

J. G. NULAND
Chace, Whiteside & Winslow, Inc.
New York

Dear Sir:

I've just read your article "A Look Ahead: Too Much for Much Too Long." In my opinion, you have condensed a few simple figures, facts, and projections into one of the best articles I have seen concerning the oil industry. You are to be congratulated on your efforts.

JOHN E. B. MERRIMAN
Paine, Webber, Jackson & Curtis

PETROLEUM WEEK will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.

Address all such correspondence to LeRoy Menzing, Editor PETROLEUM WEEK, 330 W. 42nd St., New York 36, N.Y.

HERE'S WHY:

Max Peden, Drilling Superintendent for True Drilling Company (operating nine rigs in the Rocky Mountain Area), is running more Reed "Y" bits these days. Why? Mr. Peden says: "Our rigs are running in rough country. The terrain and the weather are working against us most of the time. This means that the tools and equipment we use have to be the very best. The faster we get down hole the better we please the operator (and ourselves). And that's just what Reed "Y" bits do—they get us down hole faster."

Mr. Peden, who is also the Rocky Mountain Vice-President for the A. A. O. D. C., is a man who knows how to drill and knows good equipment. We're pleased to number him among our satisfied customers. The overwhelming acceptance of Reed products by men like this has us working our research and engineering staffs night and day to continually develop and improve rotary drilling tools.

Call the Reed man in your area. He has information on Reed rock bits, tool joints, and drill collars that can help you make money.

CONTRACTOR TRUE DRILLING CO. — LEASE KOCH — WELL No. 6 — FILE No. 1
RIG No. 13 — MAKE WILSON — SIZE 8000 — COMP TRUE OIL CO.
SPUD 12-9-59 — TD 12-10-59 — COMP 12-21-59 — COUNTY CROOK — FIELD D-CREEK — STATE WYO.
SECT Sec 17 — TOWNSHIP 49 N — RANGE 68 W
TYPUSH DON WORTHINGTON — PUMP - MAKE - MODEL OILWELL-P-18 — STROKE 18
TOOL JOINT MAKE — SIZE & TYPE P.H. F.W. — OD 6
DRILL COLLARS—No. 10 — OD 6¾ — ID 2⅞ — LENGTH 2994' — ROGERS

NO.	SIZE	MAKE	TYPE	JET 1	JET 2	JET 3	SERIAL	METRE AGE	FEET	HRS.	WT. ON BIT 1,000 LBS	RPM	MUD WT.	PUMP PRESS.	SPM 1	SPM 2	MUD WT.	MUD VIS.	REMARKS
1	8¾	R	Y-T-3	⅝	⅝	⅝	549661	1800	1800	12½	25	250	¾	1200	62	6			
2		R	Y-T-3	⅝	⅝	½	594659	3115	1315	11¾	—	—	—	—	—	—			
3	8¾	R	Y-T-3	½	½	⅝	68988	4125	1010	13¾	30	250	½	1200	60	6			
4		R	Y-T-3	½	½	⅝	94433	5040	915	14	—	—	—	—	—	—			
5	8¾	R	Y-T-3	½	½	⅝	594030	5625	585	12¾	30	250	¾	1200	60	6			
6		R	Y-T-1	½	½	⅝	N85164	6190	565	22¼		150	1	1120					

REED

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GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN DECKER PRODUCTS.

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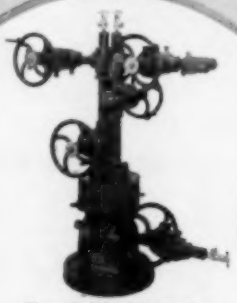
Triple Block Tree

Dual Unitree



Threaded dual tree with Crescent Flange Bottom

Triple Tri-Flange Tree

Single Unitree

Crescent Flange Tree with Crescent Flow Controls

Dual Hookup with Dual Controls

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60-Second Summary / WHAT'S HAPPENING IN OIL

June 17, 1960

dept/INDEX

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There's more producible crude in this country than proved reserves figures indicate. An Interstate Oil Compact Commission committee believes 89.8-billion bbl. can be produced. . . . p. 32

•

Illinois Basin crude postings, which have been firm for 2½ years, were cut 15¢ a bbl. this week. Some Kentucky and Indiana crudes were also trimmed, and the impact could spread to Canada. . . . p. 34

•

Oil industry executives believe the second half of 1960 should be better than the first. Drilling, production, and demand are expected to perk up, but competition will be stiffer, and profits will continue to be sticky. . . . p. 27

•

The scramble to find markets for Venezuelan crude has things popping in Central America. U.S. companies are piling up bids to build refineries there, and at least nine have been proposed so far. . . . p. 62

•

There isn't much hope that oil-producing states will ever agree on a nationwide market-demand proration program. State conservation officials argued it anew this week—and they're still poles apart. . . . p. 30

•

Louisiana operators are upset and confused over the state order restricting multiple completions. Adverse effects are expected, but it'll take time to evaluate the impact. . . . p. 48

•

A coordinated program to curb waste and evaporation losses is paying big dividends for Atlantic Refining Co. Annual savings are approaching the initial investment cost of new and improved equipment. . . . p. 76

•

Suppliers aren't the least bit happy with the idea of extending cash discounts to gasoline. But dealers are pressing the point, and it's expected to stir up more debate in industry circles. . . . p. 94

•

Indonesia is more interested in lining up credits for oil operations than in granting new concessions, according to the president of the government's oil company. This applies to newcomers and established firms. . . . p. 62

•

Secondary recovery projects are expected to increase substantially in Louisiana this year. A state report indicates 180 reservoirs may be involved by 1961, an increase of 37 over 1959. . . . p. 43

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

June 17, 1960

Cuba's unpredictable Fidel Castro had government and industry officials in Washington, London, and New York guessing at midweek. After Jersey Standard, Shell, and Texaco refused to handle Soviet crude in their Cuban refineries, Castro issued a confiscation threat in the same breath that he ordered a government take-over of three privately owned hotels.

Speculation is that Castro may doubt Russia's ability to supply Cuba's oil needs if U.S. and British refiners are chased out. The clincher would be the Soviet ability to line up enough tankers to move crude and products to meet a 60,000 b/d demand.

The Cuban dictator's harrassment of U.S. firms may lead Washington to press harder for sugar-buying leverage in Congress. A new effort is under way in the House to amend the pending Sugar Act extension bill to give the President more authority on price-subsidized purchases of Cuban sugar. Agriculture Committee Chairman Harold Cooley (D., N. C.), however, is backing a bill that would give the Administration quota-jiggling authority only if Cuba fails to supply its share. But there is growing sentiment in Congress for a stronger version.

•

Humble Oil & Refining's Carter division came out with "Enco" and "Enco Extra" as new gasoline labels this week. The switch affected 272 stations in Washington and Oregon, was timed to the introduction in that area of two gasolines "with a new energy booster," according to the company. Humble admits that the name Enco is being tested for public acceptance and that it will be used by its Ohio marketing division next fall.

•

Matthew V. Carson's wish to stay on as Director of Oil & Gas depends upon Interior's finding another "neutral" Imports Administrator. Should he retain the former of his two positions, Carson could continue to be the government head of the National Petroleum Council and of the Foreign Petroleum Supply Committee. A Navy captain, he is on loan to Interior, and can retire next December on 20 years service.

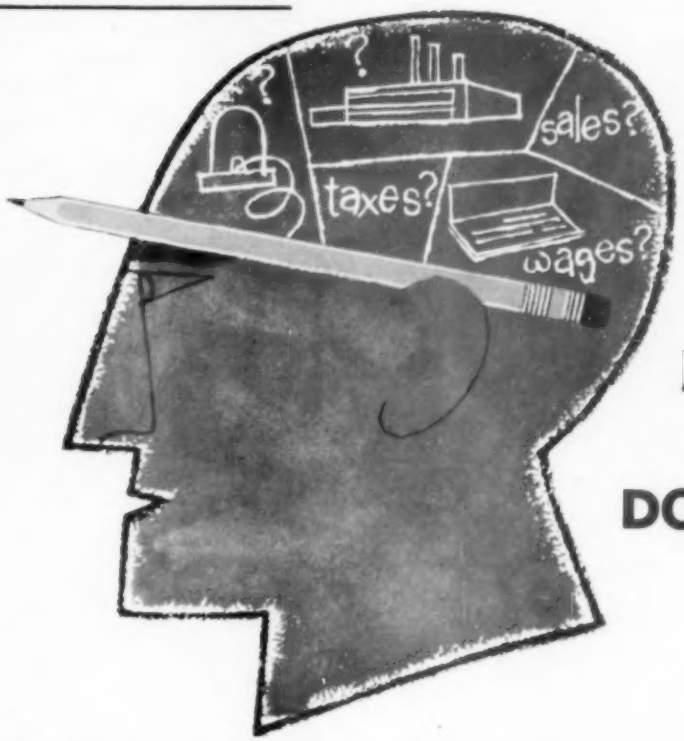
•

An enterprising Brooklyn (N. Y.) fuel oil jobber hurled a $10,000 challenge at gas heat advocates this week. Hanney Fuel Oil Co. offered to award that amount of cash to anyone—including utility companies—who can prove gas heat is cheaper than oil heat in the Brooklyn-Long Island area.

•

Purchaser nominations for Texas crude in July averaged 11,729 b/d below June bids. The buyers requested 2,520,518 b/d for next month. The Bureau of Mines estimated market demand for Texas crude in July at 2,575,000 b/d, an increase of 75,000 b/d over its estimate for June. The current crude allowable averages 2,634,597 b/d. The state-wide hearing to determine the July allowable is Monday.

SHARPEN YOUR PENCIL



HOW GOOD A BUSINESS HEAD DO YOU HAVE?

Have you ever wanted to run a business? Ever thought you could do it better than the boss? Here's a chance to test yourself on financial matters.

RUNNING ANY BUSINESS, no matter what its size, boils down to this: During the year you take in so much. Out of it you buy materials and services. You pay salaries and wages, taxes, rents and so on. You also set aside something for expansion and improvements. Choose one of the figures given below in each category and enter it in the box. Then, after you have filled in all the blanks, see how your figures compare with the actual costs of running a business.

1. Sales and other income. The amount Standard Oil received from customers plus all other income totaled $1,918,000,000 last year. Enter that at the top of the statement.

2. *Things we bought and used, plus charges made for wear and tear.* We purchase everything from structural steel to rubber bands from 32,000 companies, large and small, in hundreds of American communities. What was the total? A. $10,000,000. B. $1,412,000,000. C. $467,000,000.

3. *Wages, salaries, benefits.* This may surprise you! A. $348,000,000. B. $34,800,000. C. $19,000,000.

4. *Taxes (excise taxes not included).* A. $81,000,000. B. $47,000,000. C. $300,000.

5. *Profits. (Total 2, 3 and 4. Deduct from 1.)*

6. *Profits used for improvements.* To progress, a business must plow back earnings into improvements. If *you* were the chief executive of Standard, how much would you put aside? A. $5,000,000. B. $150,000,000. C. $85,000,000.

7. Dividends paid shareowners. What is *your* answer?

The Correct Answer to No. 7 is $55,000,000. (You were right if you entered the following: 2.B; 3.A; 4.A; 5. $140,000,000; 6.C.) If you held shares of Standard Oil stock, the value of the dividends you received was $1.93 per share in 1959. Standard has paid dividends for 67 consecutive years—making our company good to work for, deal with and invest in.

What makes a company a good citizen?

One test of good citizenship is a company's desire to keep customers, employees, stockholders, and the public informed on how it works and where its money goes.

1. SALES AND OTHER INCOME	$
COSTS (What we spent)	
2. Things we bought and used (includes wear and tear)	$
3. Wages, salaries and benefits	$
4. Taxes (excise taxes not included)	$
TOTAL COSTS (Add items 2, 3, 4)	$
5. TOTAL PROFITS (Deduct total costs from item 1)	$
6. IMPROVEMENTS (Deduct this amount from item 5)	$
7. DIVIDENDS PAID SHAREHOLDERS (What's your answer?)	$

The petroleum industry is a source of tremendous income from taxes for federal, state and local governments. From Standard Oil Company alone, government got $391,000,000 last year from excise taxes paid by motorists on petroleum products. This figure is in addition to the amount to be shown on Line 4 above.

STANDARD OIL COMPANY
(INDIANA)

STANDARD
THE SIGN OF PROGRESS...
THROUGH RESEARCH

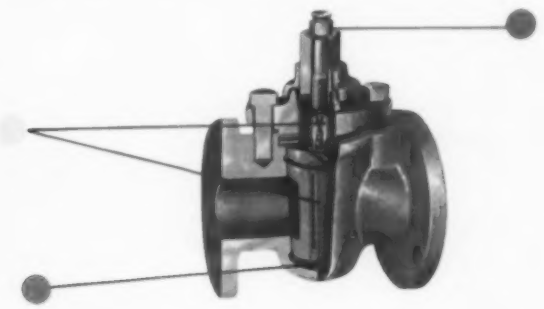
The Chinese had water distribution systems centuries ago. "Pipes" were sections of bamboo continuously spouting water. While date or inventor is not certain, one of the earliest valves was made by boring a hole in a plug and fitting it into holes cut in the bamboo pipe.

he stopped a trickle of water

. . . and his idea helped give you a better valve

One of the first known valves, a plug cock invented by the Chinese, had two inherent advantages never equalled by any other type of valve: *simplicity in construction and operation.* It controlled flow with only one moving part, the rotary plug.

To these basic advantages, the modern Rockwell-Nordstrom valve adds a third: *pressurized lubrication.* Pressurized lubrication totally seals the valve against leakage and maintains an instantly renewable seat. It also reduces wear and assures easy operation. And because there are only three basic parts – plug, body, and cover – you get longer life and lower cost—"The fewer the parts, the fewer the repairs." For more advantages of the Rockwell-Nordstrom valve, see the illustration below.



RUGGED DESIGN PLUS LUBRICATION SAVES MONEY

- Lubricant quickly, easily injected through Rockwell fitting.
- Lubricant travels through Sealdport® system to create powerful seals against leakage and prevent metal-to-metal wear between plug and body . . . note seats never exposed to the line.
- Lubricant hydraulically jacks plug minutely from seat for instant quarter-turn operation.

Rockwell-Nordstrom is the original and world's most complete line of lubricated plug valves. Available in sizes from ½" to 36" and pressures to 15,000 lb. For additional information, see your supplier or write: Rockwell Manufacturing Company, Pittsburgh 8, Pennsylvania. Canadian Valve Licensee: Peacock Brothers Limited. If you live outside the USA, write: Rockwell International S.A., Geneva, Switzerland.

Lubrication Makes The Difference

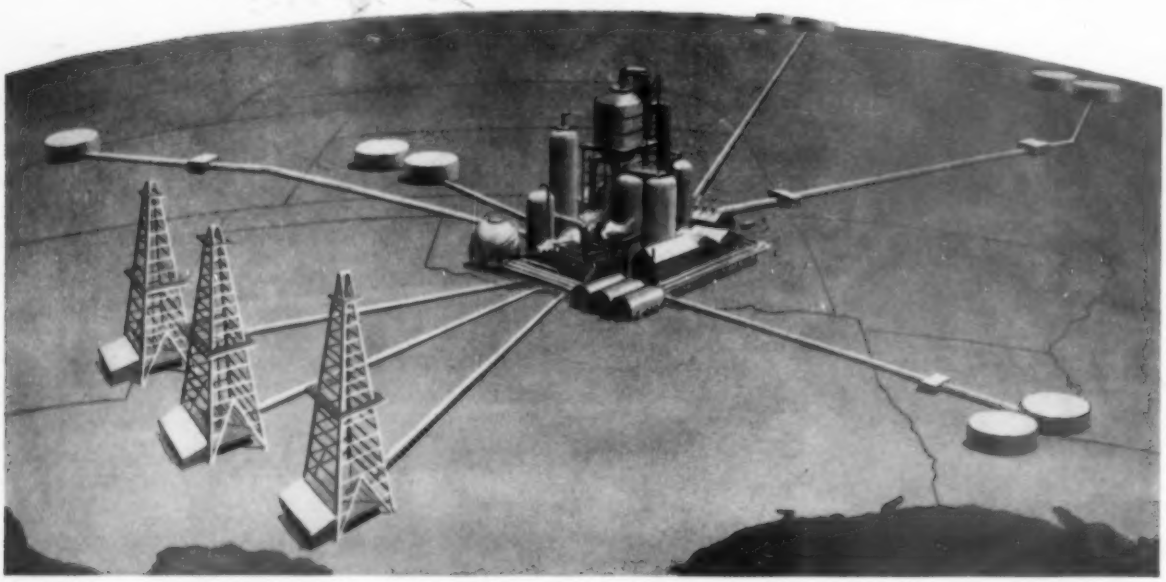
ROCKWELL-Nordstrom VALVES

another fine product by

ROCKWELL

Link Industrial Control Systems Engineering...

SIMULATING PRODUCTS PIPELINES WITH LINK Dialog*



Optimum pipe line operation requires fast and accurate analyses of the many variables involved to assure economic delivery of pipe line products.

A Link Pipe Line Simulator is an indispensable tool for **profit-minded** pipe line management. It incorporates high-speed digital/analog computing techniques to—

- analyze economic capability of pipe line
- predict and program varying product demands
- compare operating alternatives
- study operational techniques

With the Pipe Line Simulator, you can be assured of reducing operating costs because it provides—

- **precise** scheduling of multiple product requirements
- **reliable** and dependable dispatching
- **rapid** re-scheduling to meet 'up-sets' or emergencies
- **engineering** data for design and systems study

The Dialog* Pipe Line Simulator is just one of the many Link engineered systems for serving the control, scheduling and analysis demands of the petroleum, gas, and petro-chemical industries.

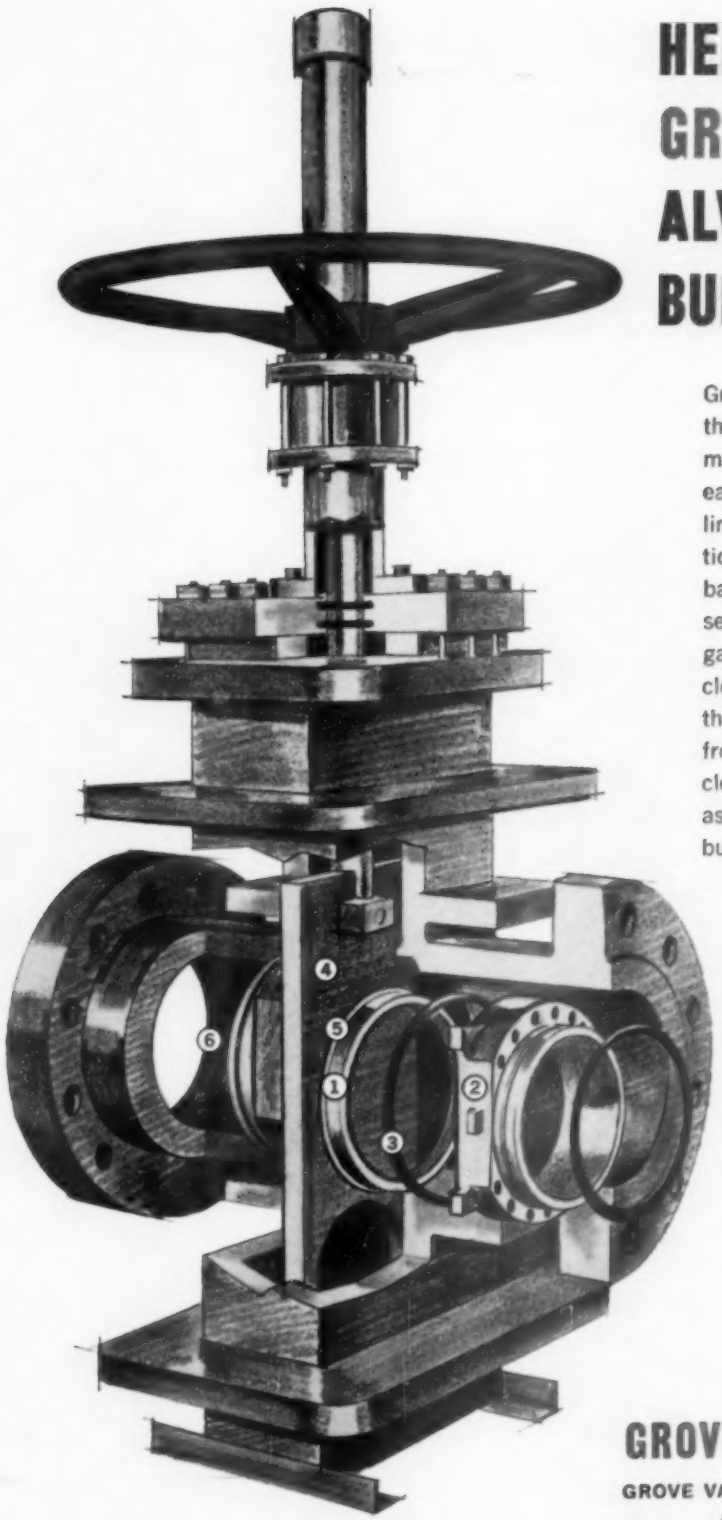
For specific details on Link Dialog Pipe Line Simulators, write to J. C. Croft, Jr., Manager, Industrial Control Products, Link Division, General Precision Inc., Binghamton, N. Y

DIALOG* (Link Digital-Analog System Components and Building Blocks)

another example of Link ability

LINK DIVISION
BINGHAMTON, NEW YORK

GENERAL PRECISION, INC.



HERE'S WHY A GROVE G-4 VALVE ALWAYS GIVES A BUBBLE-TIGHT SEAL

Grove protected Seal-"O"-Ring® system is the heart of the G-4. Inner (1) and outer (2) metal seat rings shield the o-rings (3) on each side of the gate (4) from damage by line contaminates. Inner seat rings also function as a primary metal-to-metal seal (5) backed up by the o-rings. No lubricants or sealing compounds are needed. The floating gate and seats assure fast, easy opening and closing, and positive, bubble-tight sealing; the inner metal rings scrape foreign matter from the gate while the o-rings squeegee it clean. Through conduit (6) is provided to assure ideal flow characteristics. Send for bulletin #571.

GROVE PIPELINE VALVES

GROVE VALVE AND REGULATOR COMPANY

a subsidiary of Walworth

6529 HOLLIS STREET • OAKLAND 8, CALIFORNIA

Offices throughout the U.S. and in Western Canada

You save drilling dollars wit

MUD PROBLEM: Maintain a stable bay-water mud to drill through hydratable shales and formations containing high pressure gas and salt water.

WELL DATA

Location: Timbalier Bay Field, Lafourche Parish, Louisiana
Total Depth: 15,376′

MUD ADDITIVE PROGRAM

0′ to total depth	Q-BROXIN*, BAROID**, bay water, caustic soda, gypsum.
12,876′	Mud density increased to 12.3 ppg; Q-BROXIN treatment increased; Baroid Mud Centrifuge installed.
13,276′	FINE MICATEX**, and other lost-circulation materials added, maintained to total depth.
14,302′	Diesel oil added, maintained at 6% to 10% by volume to total depth.
14,510′	TRIMULSO** (0.5 lb/bbl) and E P MUD-LUBE†, (4.0 lb/bbl) added, maintained to total depth.

TYPICAL MUD PROPERTIES

Depth, feet	12,950	13,464	14,064	14,510	15,003	15,376
Weight, ppg	12.1	12.5	13.3	14.3	15.6	16.6
Ave. sp gr. solids	2.8	3.0	3.0	3.2	3.8	3.7
Viscosity, sec. API	55	48	54	66	58	65
Stormer Gel, 10 min	25	25	20	10	7	15
Filtrate, ml. API	5.5	4.9	3.9	1.6	1.8	1.2
pH	10.9	10.4	11.1	10.4	10.2	10.6
Chloride, ppm (1000's)	19	23	21	23	22	23
Oil, %	0	0	0	6	9	7

CASING PROGRAM

Size Inches O.D.	*Depth Set Feet*
13⅜	6,464
9⅝	14,871

**Registered Trademark, Baroid Division National Lead Company
†Trademark, Baroid Division National Lead Company
*Registered Trademark of Puget Sound Pulp and Timber Company

THE

DISCUSSION: Major difficulties were anticipated below 14,000′ because of gas-bearing hydratable shales. Side wall coring, electric and induction logging and similar operations required an exceptional mud program. Salty bay water was used for making-up the liquid phase of the mud.

SOLUTION: Q-BROXIN mud was chosen as the basic mud additive from surface to total depth. The treated mud had a high degree of tolerance for solids, an inhibitive effect on hydratable shales and was not greatly affected by contaminants. BAROID was added to maintain weight, and FINE MICATEX was used to maintain good hole condition below 14,500′.

Total mud cost was about one-half the cost of previous wells of similar depths. 14,871′ of 9⅝" casing was successfully set and cemented, the deepest of this size in this field. Side wall cores and good logs were obtained without difficulty.

a Baroid Mud Program

MUD PROBLEM

... and its solution

Total mud costs were cut in half and tight-hole problems were solved in this typical case history of a Baroid mud program. Through experienced engineering skill, a combination of Baroid mud additives were matched against a combination of down-hole conditions with successful results.

Gas pressure, salt contamination and tight-hole conditions were expected at depths below 14,000′. Side wall coring and electrical logging were desired. Using a bay-water — Q-BROXIN mud, frequent pilot testing, and special-purpose Baroid additives permitted successful drilling of the well and setting 9⅝″ casing to a record depth in this field.

This demonstration is repeated daily in every major oil area. Baroid's improved concept of mud marketing is winning approval. By integrating material production, engineering research and distribution into a single chain, administered with utmost integrity, Baroid solves your problems and *saves your drilling dollars.*

RESISTS ANHYDRITE CONTAMINATION
OVERCOMES EFFECTS OF SALT WATER
KEEPS MUD STABLE AT HIGH TEMPERATURE
KEEPS MUD DEFLOCCULATED

BAROID

BAROID DIVISION NATIONAL LEAD COMPANY

MAIN OFFICE: P. O. BOX 1675, HOUSTON 1, TEXAS

BAROID

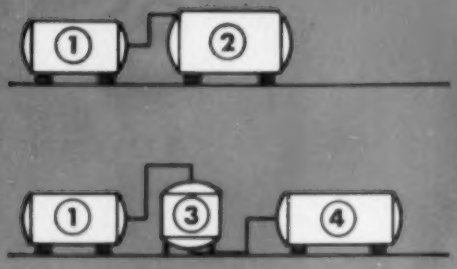
6008

Does Your

Waterflood or Disposal

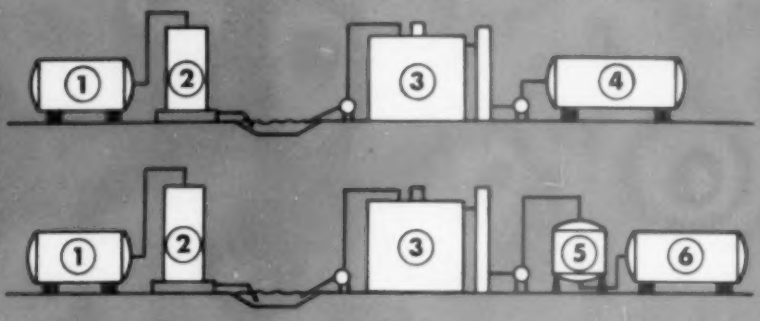
Problem Require...

A **CLOSED SYSTEM**



1. Oil Skimmers
2. Filta-Wash
3. Filters
4. Backwash Tanks

OR AN **OPEN SYSTEM?**



1. Oil Skimmers
2. Aerators
3. Raw Water Treating Tanks
4. Filta-Wash
5. Filters
6. Backwash Tanks

BS&B AQUA-Kleener* Systems Include Both Types!

Your BS&B Representative can help you take the "guess-work" out of your waterflood or disposal problem. Whether you need a simple *closed type* system which excludes air from the process, or a more elaborate *open type* system which uses air as a part of the treatment, he can recommend the correct system from BS&B's full line of AQUA-KLEENER water treating equipment to solve your problem most efficiently and economically.

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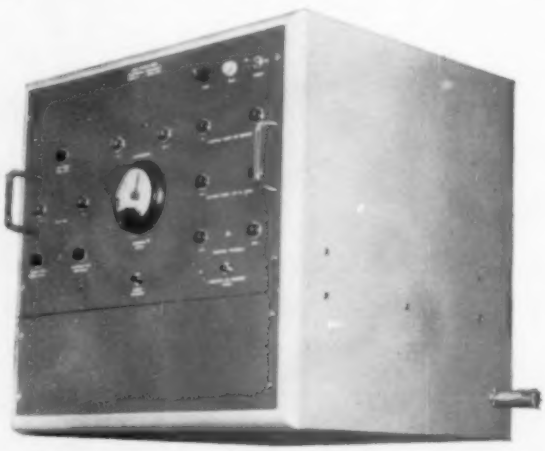

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Business Signs Point to an Economic Upswing for Oil in the Second Half

The outlook for the second half of 1960 contains more optimism than pessimism—concrete hopes that the next six months will see slow but sure oil industry growth.

This is the conclusion reached by PETROLEUM WEEK editors after discussing business prospects with industry executives and economists throughout the country.

The projection contains no pie-in-the-sky thinking, for all signs indicate that the surge of confidence is based firmly on hard-headed reappraisals of oil's many problems.

Perhaps the best summation came from one executive, who wryly phrased it this way:

"The remainder of 1960 will present a favorable opportunity for oil. It will not be neglected."

Another notes: "The outlook for the rest of 1960 appears to be reasonably favorable."

Oil's prospects are coupled with those of the general economy. And, while 1960 may not be a boom year, it could wind up as one of the best yet for the business world.

The better-than-average second half that oil men anticipate, plus a good but somewhat nervous first half, may add up to a near-record year for oil.

Harbingers of what's ahead are these key business indicators compiled by McGraw-Hill's Dept. of Economics:

- Gross national product will climb to an annual rate of some $510-billion by the end of 1960, up from $479.5-billion in 1959. For the first half of 1960, total business of the nation ran at an annual rate of about $502-billion.
- Industrial production will jump six index points to 168 (1947-49=100) by year-end.
- Consumer spending by then is expected to hit a rate of $330-billion, up almost 6% from last year.
- Automobile sales have been averaging 575,000 units monthly since March—the best level (except for June, 1959) since the peak year 1955. Rate of sales is forecast at 7-million units for 1960. If that holds true—and chances are good that it will—1960 will be the second best year in auto history.
- New construction this year will be strong. Housing starts are predicted at 1.2-million, only 125,000 fewer than in 1959. Oil heat can expect to capture approximately 15% of this new home market.

But while 1960 will be a good one for sales, most oil men agree it'll be a case of sticky profits throughout the year.

Weak prices for products, inventory surpluses, and stiffer-than-ever competition for markets will "make a buck hard to come by."

As one oil executive sees it, "We expect record sales in 1960, but we anticipate profits to be only about even with last year."

Oil's second-half demand looks good. It may rise as much as 4.8% over the second half of 1959. This would mean an average of about 10-million b/d for the year as a whole, an increase of 3.3% over 1959.

This is a composite of forecasts by top economists of representative oil companies (pages 28 and 29). The percentage gain now expected is about the same as predicted by PETROLEUM WEEK six months ago (PW—Dec.30 '59,p11).

The marked increase for the second half assumes reasonably normal weather during the fourth quarter.

The "Cinderella" products—secondary items that nevertheless are becoming increasingly significant—will score substantial percentage gains.

These products, which are contributing more and more to industry revenues, are led by jet fuel, road oils, and asphalt. One company estimates that commercial demand for kerosine-based jet fuel will increase to 412,000 b/d by the end of the year—to chalk up a gain of close to 36% for the full year.

But the brightest note of all is the expectancy that inventory excesses may be worked off completely by year-end, and possibly as early as October.

Projections by the economist of one major company indicate that, by end of September, the days' supply of gasoline will be trimmed to 41.5—2.5 days fewer than on Sept. 30, 1959. The

Significant Sidelights

■ **The appetite of today's military forces for fuel is considerably greater than it has been in the past. The most needed fuel in the event of a national emergency would be for jet aircraft, which have staggering appetites.**

Gulf Oil Corp. estimates that a jet bomber kept aloft around the clock would consume 2,000 b/d. A fleet of 200 bombers aloft in combat-ready would gobble up 400,000 b/d.

Such a fuel requirement is 150,000 b/d more than the present U.S. refinery output of JP-4 military jet fuel. But Gulf estimates that the additional fuel could be made with little or no change in existing refinery equipment. In the event of an all-out national emergency, Gulf predicts, the industry could turn out 2.5-million b/d of jet fuel for the military.

Consensus of Eight Oil Economists is that 1960

	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	10,018	+ 5.4	10,030	+ 3.8
Gasoline	4,283	+ 2.2	4,186	+ 1.8
Distillates (Inc. kerosine)	2,062	+ 4.7	2,208	+ 2.8
Residual	1,578	+ 8.9	1,650	+ 3.0
All Other	2,095	+ 10.6	1,986	+ 10.3
New Supply	9,998	+ 5.7	9,919	+ 2.1
Refinery Runs	8,285	+ 4.4	8,195	+ 2.5

	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	10,000	+ 5.2	10,000	+ 3.5
Gasoline	4,338	+ 3.5	4,215	+ 2.5
Distillates (Inc. kerosine)	2,106	+ 6.9	2,255	+ 5.0
Residual	1,615	+ 11.5	1,528	- 4.6
All Other	2,024	+ 6.9	1,900	+ 5.5
New Supply	9,971	+ 5.4	9,906	+ 2.0
Refinery Runs	8,250	+ 4.0	8,125	+ 1.6

	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,977	+ 5.0	10,016	+ 3.7
Gasoline	4,346	+ 3.7	4,220	+ 2.6
Distillates (Inc. kerosine)	2,094	+ 6.3	2,252	+ 4.9
Residual	1,558	+ 7.5	1,647	+ 2.8
All Other	1,979	+ 4.5	1,897	+ 5.3
New Supply	10,120	+ 7.0	9,962	+ 2.5
Refinery Runs	8,353	+ 5.3	8,191	+ 2.5

	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,950	+ 4.7	9,990	+ 3.4
Gasoline	4,315	+ 3.0	4,199	+ 2.1
Distillates (Inc. kerosine)	2,087	+ 5.9	2,246	+ 4.6
Residual	1,513	+ 4.4	1,615	+ 0.8
All Other	2,035	+ 7.4	1,930	+ 7.2
New Supply	10,050	+ 6.3	9,900	+ 1.9
Refinery Runs	8,270	+ 4.2	8,150	+ 2.0

days' supply of distillates and residual by Sept. 30, he adds, will be lower than a year ago by 12.9 days and 15.3 days, respectively.

This prediction is supported by another key oil economist: "If industry operations (crude producing and refinery processing) are increased by no more than 1.5% above their 1959 rates, inventories of both crude and products should be close to desirable levels by year-end. We believe that this is a reasonable expectation, and one which should lead to markedly firmer petroleum markets."

So far in 1960, the industry has got off to a fairly good start toward inventory correction. In the first half, total demand exceeded total new supply by a healthy margin.

Some degree of restraint in petroleum supply is evident during the first half of 1960, says an economist for one major. "At mid-year, 1960, stocks of most products are in fair shape, with gasoline being the notable exception." This, he notes, is in contrast to the first half of 1959, when new supply exceeded total demand, and a net 149,000 b/d were added to petroleum inventories.

Demand will outstrip new supply for the rest of this year, too—a healthy development for inventory position, but not exactly a good omen for producers.

The gain in domestic crude output is expected to fall far short of the 5% increase forecast earlier. As it looks now, crude production for all of 1960 will be up only 1.3% above last year's depressed levels. Percentagewise, crude output will rally during the second half—4.5%—but only because of the poor showing of the second half of 1959.

The shining future predicted earlier for drilling is tarnished slightly at midyear. Activity will be good, but total holes drilled may be as much as 4% under first-of-year estimates.

A PETROLEUM WEEK survey now shows that 46,500 to 48,000 holes will be drilled in 1960.

One large supply company estimates that footage drilled in the U.S. will approximate 200-million ft. To reach this total, drilling in the last half of the year will be 1% higher than in the last half of 1959.

The drilling count is down because of fewer development wells. Wildcatting is holding its own.

But one major producing company reports that its drilling this year is up 30% over last year. Says a company spokesman, "Actually, our exploratory drilling program is about even with last year. It's our development well program that's really going."

The reasons most often cited for the decrease in development drilling are low allowables and lack of places—and money—to drill.

Here are some typical comments:

- "All our development fields are drilled up. We can only look for new reserves. Also, why drill development wells when we're faced with an eight-day [Texas] allowable?"
- "Tight money is the biggest reason for the drilling lag. We're an operating company and operate on other peoples' money."
- "Weather has a lot more to do with drilling activity than some of us care to admit. I still believe it is a factor when business is at a low ebb, and somewhat less of a factor when business is good. After all, if the market for oil is strong, we can afford to spend the extra money to drill a hole right now; if the market is not strong, we can just as well drill a hole in 30 days as to try and drag rigs through mud, snow, and water."

The Gulf Coast is singled out by many as offering the best short- and long-term prospects for increased drilling. Gas, not oil, will be the prime target.

Kerr-McGee Oil Industries, Inc., one of the first to do offshore work, now has five mobile platforms in the Gulf of Mexico. These have been used approximately 90% of the time during the first five months of 1960.

The company also has three platform-tenders operating in the Gulf. In common with most other offshore contractors, Kermac's platform-tender-type rigs have shown poor utilization rates so far this year—on the order of 30%. The reason for this is that offshore wells are being drilled deeper.

"Generally speaking," says an executive of a large operating and contracting firm, all the submersible rigs that are capable of working in waters deeper than 40 ft. will be busy in the second half. There may be a few rigs capable of working in waters 10 ft. to 40 ft. deep that will be shut down and looking for work."

What is stimulating this increase in deeper-water drilling, the spokesman says, is the recent offshore tracts oil companies received in bidding.

On the negative side, he notes,

Total Demand May Rise 3.3% to 9,977,000 b/d

"We're looking the hurricane season in the face." Because of increased knowledge of wave activity between mid-June and mid-October, and because of pressure from insurance companies, many operators will take rigs rated for 40-ft. drilling and work them in water only 25 ft. deep during the "high-water" season. At the same time, he adds, rigs capable of working in 75 ft. of water may be moved back to 40-ft. depths.

The Rockies also show plenty of promise. There's no slackening in sight from the snappy drilling pace of the past few years.

Continental Oil Co. reports "sharply accelerated development drilling" in the last half of the year, with the company participating in from 60 to 70 development wells, compared with 45 completions during the first half of 1960. Over-all development drilling is expected to exceed last year by as much as 40%.

The step-up is due to the drilling up of pools in the Sumatra area of Montana, several fields in Wyoming, and increased operations in Rio Blanco and Moffat Counties, Colorado.

Conoco's exploratory drilling operations will closely parallel 1959, when 20 tests were drilled.

Colorado Oil & Gas Corp. is another company that plans a marked increase in operations. Drilling during the last half of the year will be up "probably a third." During the first half, the company drilled ten development holes and five wildcats. In the last half, Colorado Oil expects to drill another 15 development tests and seven wildcats.

Discoveries in the Arch Unit of Sweetwater County, southwestern Wyoming, played a large part in the increase planned for the second half.

On the other hand, British-American Oil Producing Co. reports that "the year will be about the same as 1959, and there's little change in the proportion of development and exploratory drilling."

New discoveries will help Texas drilling bounce back from its first-half slump.

One major company says its drilling program in the Southwest is 10% to 20% more than originally planned for 1960, with more wildcatting and less development work being done. "In the second half, however, development drilling will pick up slightly as a result of several new fields being discovered."

Another major similarly reports that its drilling program in the second half will exceed the first half. "Our second-half program," a spokesman says, "is a carry-over of first-half drilling. It's because of additional discoveries."

And still another: "The company will drill 7% to 10% more tests in 1960 than it did in 1959. Also, we will drill 20% more holes in the second half than we did in the first."

Onshore and offshore, the shift everywhere is toward deeper drilling.

This trend is illustrated by a comparison given by Falcon Seaboard Drilling Co., Tulsa, between the company's current status and that of four years ago.

During 1956—the industry's record year for completions—the company operated 21 rigs in the Mid-Continent, Gulf Coast, and Rocky Mountain areas. Of the total, 13 (or 62%) were capable of drilling below 10,000 ft., and 8 of the 13 could handle assignments of 15,000 ft. to 20,000 ft. Eight rigs were in the 6,000-ft. to 10,000-ft. depth bracket.

Today, Falcon Seaboard operates 30 medium to deep drilling rigs (and one small workover unit). Depth capacities are broken down as follows: Eight rigs in the 6,000-ft. to 10,000-ft. class; eight at 10,000 ft. to 15,000 ft.; six at 15,000 ft. to 20,000 ft.; and eight at 20,000 ft. to 25,000 ft.

Average depth of holes for the company has averaged 6,000 ft. to 8,000 ft. over the past two years.

Kerr-McGee has similarly moved to liquidate its shallow drilling equipment.

Big rigs for deeper drilling have certain advantages over small ones. Many operators are following the trend by increasing the capacity of their drilling equipment.

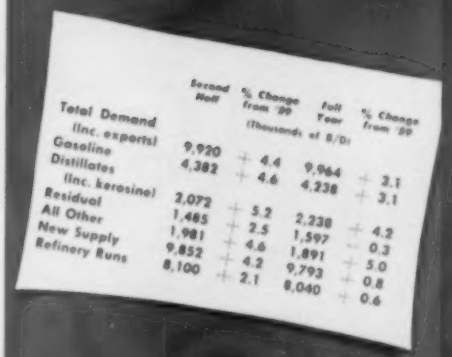
T. N. Law, Falcon Seaboard's president, says his company's thinking is dictated by four primary considerations.

"First, ability to employ better personnel, due to the length of time spent on each location;

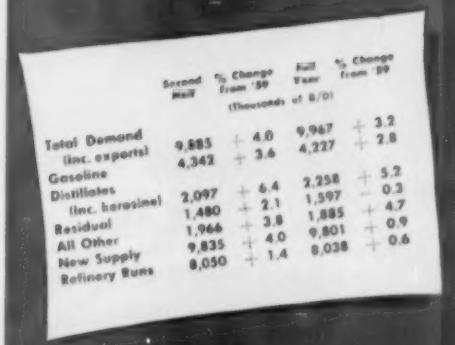
"Second, decreased moving costs occasioned by more time on location with deeper drilling;

"Third, lower maintenance costs for big rigs due to fewer rig-ups and teardowns and more time for over-the-hole maintenance and repair;

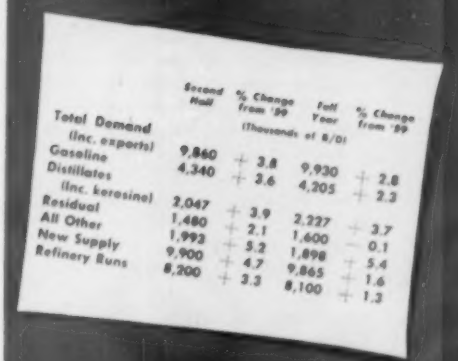
"Finally, less competitive bidding on deeper jobs as fewer companies possess adequate equipment and the technology required."



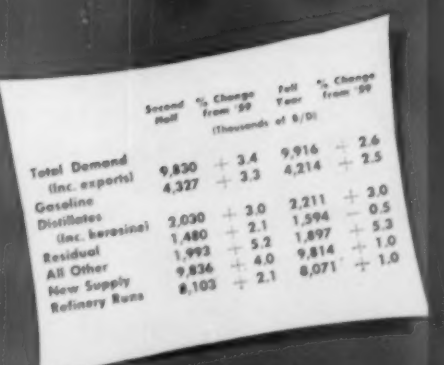
	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,920	+ 4.4	9,964	+ 3.1
Gasoline	4,382	+ 4.6	4,238	+ 3.1
Distillates (Inc. kerosine)	2,072			
Residual	1,485	+ 5.2	2,238	+ 4.2
All Other	1,981	+ 2.5	1,597	+ 0.3
New Supply	9,852	+ 4.6	1,891	+ 5.0
Refinery Runs	8,100	+ 4.2	9,793	+ 0.8
		+ 2.1	8,040	+ 0.6



	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,885	+ 4.0	9,967	+ 3.2
Gasoline	4,342	+ 3.6	4,227	+ 2.8
Distillates (Inc. kerosine)	2,097	+ 6.4	2,258	+ 5.2
Residual	1,480	+ 2.1	1,597	- 0.3
All Other	1,966	+ 3.8	1,885	+ 4.7
New Supply	9,835	+ 4.0	9,801	+ 0.9
Refinery Runs	8,050	+ 1.4	8,038	+ 0.6



	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,860	+ 3.8	9,930	+ 2.8
Gasoline	4,340	+ 2.6	4,205	+ 2.3
Distillates (Inc. kerosine)	2,047			
Residual	1,480	+ 3.9	2,227	+ 3.7
All Other	1,993	+ 2.1	1,600	+ 0.1
New Supply	9,900	+ 5.2	1,898	+ 5.4
Refinery Runs	8,200	+ 4.7	9,865	+ 1.6
		+ 3.3	8,100	+ 1.3



	Second Half	% Change from '59	Full Year	% Change from '59
	(Thousands of B/D)			
Total Demand (Inc. exports)	9,830	+ 3.4	9,916	+ 2.6
Gasoline	4,327	+ 3.3	4,214	+ 2.5
Distillates (Inc. kerosine)	2,030	+ 3.0	2,211	+ 3.0
Residual	1,480	+ 2.1	1,594	- 0.5
All Other	1,993	+ 5.2	1,897	+ 5.3
New Supply	9,836	+ 4.0	9,814	+ 1.0
Refinery Runs	8,103	+ 2.1	8,071	+ 1.0

Conservation officials decide . . .

Market Proration Is Up to Each State

Efforts to obtain ratable market-demand proration among all the oil-producing states received lukewarm treatment from the Interstate Oil Compact Commission this week.

It was made quite clear at the group's midyear meeting in Detroit that it is beyond the Compact's authority to be used as a tool for such a movement.

Most pointed remarks in this direction came from Johnston Murray, who was chairman of the Compact when he served as governor of Oklahoma.

He admonished the members of the Compact not to lose sight of the limited province of IOCC's jurisdiction and authority "in our effort to diagnose the ills and prescribe the cures for the industry—because, to ask that the Compact extend its activities beyond its legal scope of such jurisdiction and authority is but to invite its destruction."

He urged the commission to exercise care and to steer clear of the "whims" and "schemes" of those who desire that oil be prorated ratably through the Compact.

In fact, he branded such whims and schemes as those of strong individuals for "purely selfish gains."

At the same time, the chairman of the Oklahoma Corporation Commission expressed the opinion that if there is to be effective conservation, without federal control, it must be on a uniform basis.

Ray C. Jones, who heads the Compact's Regulatory Practices Committee as well as the Oklahoma regulatory body, pointed out that, after 25 years, only six states have effective market-demand proration. These are Texas, Oklahoma, Louisiana, New Mexico, Kansas, and North Dakota.

"If we are to have a comprehensive and effective nationwide program of conservation of our natural resources without complete federal control, it must be on a uniform basis," said Jones. "I do not believe the states want federal control, and I am sure the industry doesn't.

"But frankly, a few of the states, including Oklahoma, are getting awfully tired of carrying the burden of market-demand proration.

"I don't mind telling you that down in Oklahoma the Indians are getting awfully restless.

"Oklahoma is now prorated down to where it is unprofitable to explore for new reserves. The payout is too long and bankers won't lend the money."

A strong market-demand statute was held necessary to a conservation program.

In fact, Jones expressed the opinion that a market-demand statute is the guts of any conservation program, because it carries with it the prevention of physical waste as well as the protection of correlative rights of the producers and mineral owners.

But the chairman of the Utah Oil & Gas Conservation Commission wasn't in accord.

C. R. Henderson, speaking before the legal committee, said the position of his state is that this newer concept of conservation will have to be carried forward into the future, for it is not possible, even if it were desirable, for Utah to adopt it at the present time. This, he pointed out, results from Utah laws that prohibit such proration.

He said the people of his state would rebel against any group that suggested that, for conservation reasons, wells be closed down or even restricted to the level of market-demand states "which still are drilling unnecessary wells for allowable, or those which are drilling over half of their wells on less than 20-acre spacing.

"Utah, Colorado, and Wyoming," he added, "should be little concerned about using the oil and gas resources that are necessary for the benefit of man, because they will leave more oil and gas resources in the form of shale oils and asphaltic sand to posterity than the world's total estimated future production of liquid petroleum."

However, it was voted to continue a study of equality of opportunity of oil production among the various states.

It was the consensus of the committee that each state should handle its own problems, perhaps using as factors reserves, producibility, and number of wells.

These factors were set out by Paul Schultz, president of the Oklahoma Independent Petroleum Assn., in discussing the need for all states to share in proration to domestic demand.

He told the group that U.S. oil demand is one big pie, and that any time one of the states takes a bigger piece than it should, the others will have smaller pieces. He said that if all states do not carry their share of the proration burden, the oil industry will be faced with federal proration.

NEXT WEEK in Petroleum Week

A stronger emphasis on secondary recovery and on gas production are among the approaches operators are taking to meet the problems currently besetting the producing segment of the petroleum industry.

Other changes and new trends also are in the making, many of which are having great impact on major companies and independents alike.

To get a broad picture of the factors currently reshaping the producing industry, read next week's Special Report on production.

Venezuela Would Ask Soviet Export Plans

Venezuela's Oil Minister last week tagged the Russians for a role in the proposed world oil prorationing compact.

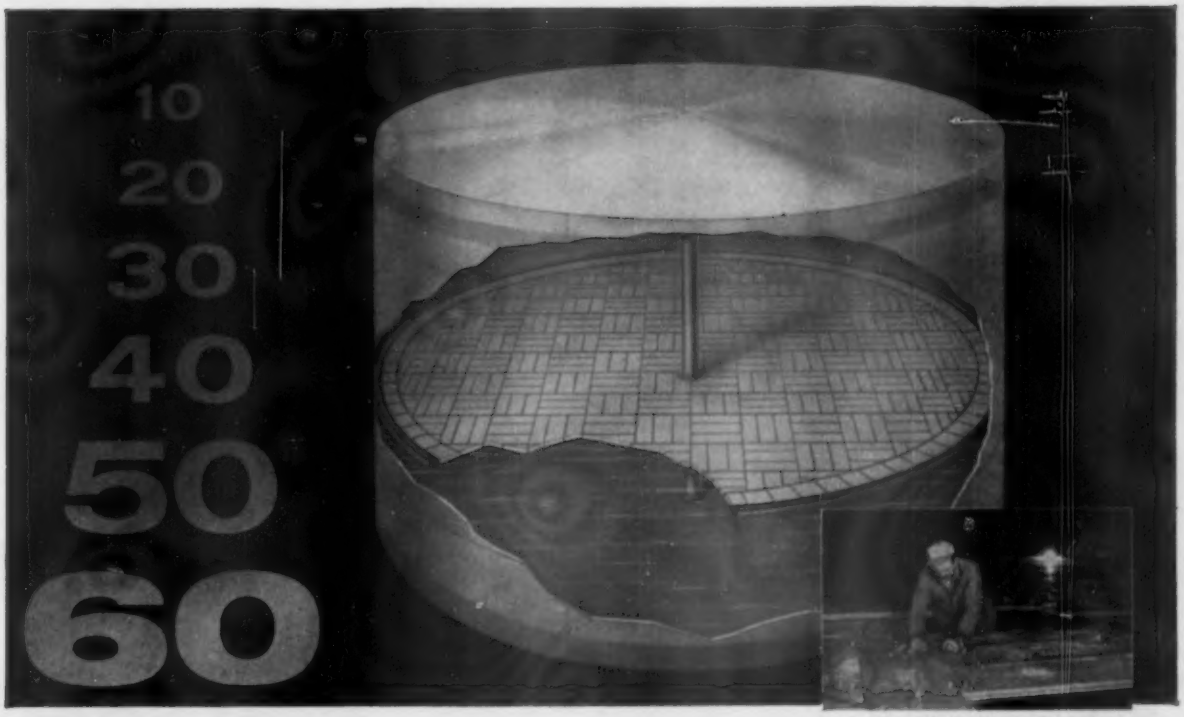
Juan Perez Alfonzo said he "would be interested in talking with Russian oil policy planners" about proposed international prorationing.

He said that Venezuela has not taken any concrete steps toward talks with the Russians. But, he added, "it is convenient to consider whether the moment has arrived for Russia to set forth its intentions."

"If Russia plans to export oil on a permanent basis," he said, "we who are interested in the compact should know what is contemplated in the Russian program."

The Oil Minister explained that the proposed compact embodies the principle that permanent net exporters should have a hearing in order to determine whether they should be included in the agreement.

In some cases, such as Russian oil exports to Italy, he noted, Russia sold oil to pay for imports. In other cases, he said, Russian oil exports have had political ends.



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U.S. Crude Potential: 90-Billion Bbl.

Interstate Oil Compact Commission report says improved techniques, such as thermal and solvent methods, boost recovery possibilities.

The Interstate Oil Compact Commission's latest estimate of producible crude in the U.S. is 89.8-billion bbl., a whopping 11.6-billion bbl. more than its 1958 calculation.

The biennial evaluation of this country's oil resources, the fourth in the series by IOCC's Secondary Recovery & Pressure Maintenance Committee, is virtually triple the crude listed as "proved reserves."

But this is the amount that existing fields are capable of producing with known and improved extraction techniques, Chairman Paul D. Torrey told IOCC's Detroit meeting at midweek.

Most of the increase in the 1960 estimate reflects IOCC's decision to give credit, for the first time, to recovery that can be anticipated from such latter-day methods as solvent and thermal processes.

The Torrey committee conceded "there are still uncertainties connected with the possible extent to which these processes may be applied, and with the [full] measure of their effectiveness."

But, it went on, experts on the processes "are unanimous [in their conclusion] that under certain reservoir conditions, the applications of new recovery methods will result in the recovery of a substantial part of the total oil content, particularly in fields of fairly recent discovery."

In round figures, it was estimated that 45.7-billion bbl. are economically recoverable with conventional methods, and 44-billion bbl. more are "physically recoverable" with known, improved methods.

The Torrey committee calculated primary reserves at 30.9-billion bbl., close to the API's estimate of 31.7-billion bbl. of proved reserves (table, below).

To this, it added 14.8-billion bbl. that it considers economically recoverable with gas and water injections.

The lion's share of the 1960 increase, however, was in the 44-billion bbl. that could come from the newer extraction techniques. This amounted to 9.5-billion bbl.

The optimistic projection means then that a greater percentage of the oil in existing reservoirs will be recovered in the future. Torrey indicated that primary and secondary recovery with conventional methods can be expected to account for 108.4-billion bbl. of the 328.4-billion bbl. estimated to be the original content.

This is 33% of the oil in place. If his forecast is correct, however, it would mean that eventual recovery would run closer to 50%.

The effect of foreign oil and natural gas on U.S. crude markets also prompted a comment that "reasonable curtailment" of imports is necessary to preserve the health of the domestic industry.

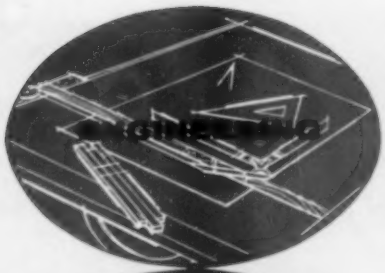
It is "complete nonsense," Torrey said, to blame all of the industry's problems on foreign oil. Gas has cut

U.S. Oil Resources As of Jan. 1, 1960

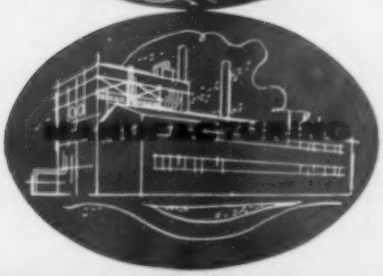
(millions of barrels)

State	Estimated Original Content of Reservoirs	Cumulative Production to 1/1/60	API Estimate of Proved Crude Reserves 12/31/59	IOCC Estimate of Proved Crude Reserves 1/1/60	Additional Reserves Recoverable By Gas and Water Injection	Total Recoverable Crude Reserves (Cols. 4+5)	Additional Reserves Recoverable by Improved Methods	Total Reserves Recoverable by Known Methods (Cols. 6+7)
New York	743	206	34	0	25	25	210	235
Pennsylvania	3,831	1,215	114	27	113	140	1,018	1,158
West Virginia	2,593	462	51	37	14	51	590	641
Kentucky	1,470	397	136	160	65	225	450	675
Ohio	4,592	661	74	61	7	68	376	444
Indiana	3,003	305	74	40	100	140	280	420
Illinois	7,352	2,154	594	335	810	1,145	3,110	4,255
Michigan	1,573	426	55	58	109	167	357	524
North Dakota	2,751	82	382	465	141	606	606	1,212
Nebraska	1,082	118	81	83	55	138	125	263
Kansas	15,450	3,196	917	825	125	950	1,500	2,450
Oklahoma	48,215	8,019	1,865	1,459	1,369	2,828	4,540	7,368
Arkansas	5,596	1,081	313	255	171	426	342	768
Alabama	358	30	34	69	111	180	111	291
Mississippi	3,307	634	389	661	150	811	1,322	2,133
Louisiana (A)	23,662	4,859	4,660	4,275	2,730	7,005	1,659	8,664
Texas (A)	112,106	22,906	14,860	15,528	4,958	20,486	16,046	36,532
New Mexico	9,960	1,376	1,026	887	996	1,883	3,984	5,867
Colorado	3,217	552	381	214	624	838	1,210	2,048
Wyoming	10,997	1,781	1,403	1,191	556	1,747	1,272	3,019
Montana	2,689	334	309	335	64	399	155	554
Utah	1,725	82	195	232	527	759	607	1,366
California (A)	62,048	11,750	3,763	3,763	1,000	4,763	4,113	8,876
Other States (B)	87	10	9	10	2	12	30	42
TOTAL	**328,407**	**62,636**	**31,719**	**30,970**	**14,822**	**45,792**	**44,013 (C)**	**89,805**
Change From 1/1/58	**+18,500**	**+4,818**	**+1,419**	**+390**	**+1,727**	**+2,117**	**+9,530 (C)**	**+11,647 (C)**

(A) Includes offshore reserves; (B) Includes Alaska, Arizona, Florida, Missouri, Nevada, South Dakota, Tennessee, Virginia, and Washington; (C) In 1958, recovery by means of solvents and heat were not considered.



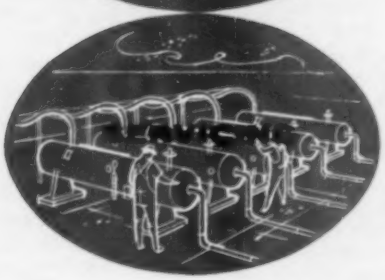
When you buy Parkersburg, you don't buy green iron and green iron alone. You buy those extras which have made Parkersburg the leader in the field of gas processing. Our **engineering**, for example, is unexcelled. At Parkersburg, we patent the process, not just the equipment. Compare our engineering with any other manufacturer's. You'll buy Parkersburg.



Parkersburg **manufacturing** is backed by an organization specializing in petroleum industry products since 1897. Rigid systems of quality control keep our manufacturing the finest in the industry, keep our units sold.

When you buy PARKERSBURG you get 'em ALL...

Installation of your Parkersburg equipment is supervised by trained men. Our men work with your men, around the clock if necessary, to get your equipment on stream promptly and operating efficiently. This is one reason, for example, why more than 150 of our DAU units are in the field today.



Service is cooperation. Complete training of your men, which begins with installation, continues for the lifetime of the equipment. You may relax in the knowledge that a call from you, any time, anywhere, will bring a prompt visit from our service representatives. When you buy Parkersburg, you get these extras. When you buy Parkersburg, you buy the finest.

THE PARKERSBURG RIG & REEL COMPANY
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PARKERSBURG—The FULL LINE in Pressure Vessels . . . Separators, Metering Equipment, Treaters, Heaters, Knockouts and Oil Skimmers, Scrubbers, Hyrecos, Hydrocarbon Recovery Units, Glycol Dehydrators, Stabilizers.

into the picture heavily, and current usage alone is equivalent to 1-billion bbl. of crude annually.

But "it is still apparent that the present import program is inadequate, as is evidenced by a continued decline in exploration and drilling, and by a continued deterioration in crude prices as a result of oversupply," he said.

It is twice as easy to find oil abroad, Torrey went on, but the IOCC has "fabulous opportunities" at hand to encourage laws and regulations that will enable U.S. oil men to take advantage of the economies that their technical ability has made possible.

One way to achieve this, he said, is through compulsory unitization laws, even though these have proved unpopular in many legislatures.

By eliminating the drilling of "unnecessary wells" and by assuring U.S. operators a fair and reasonable share of domestic markets, Torrey emphasized, "our industry, through its superior technical ability, can be secure, and can be competitive with foreign crude."

Illinois Basin Crude Cut 15c

Illinois Basin crude, which has carried a firm flat posting of $3 a bbl. since late 1957, was reduced 15¢ a bbl. this week.

The reduction to $2.85 a bbl. was initiated by Ashland Oil & Refining Co., effective June 13. Ashland also trimmed its flat posting for eastern Kentucky crude by 15¢ a bbl.

The 15¢ cut was extended by Sohio Petroleum Co. to cover the entire Tri-State area of Illinois, Indiana, and Kentucky, effective June 15.

The Ashland cut affected about 75,000 b/d, mostly in Illinois.

Sohio's pipeline runs in the Tri-State area average 54,900 b/d. Other purchasers in Illinois include Ohio Oil Co. (34,500 b/d), Carter division of Humble Oil (30,950 b/d), Texaco (30,000 b/d), and Pure (16,200 b/d).

Prior to the cut in posting, no buyers could be found for up to 1-million bbl. of "spot oil" at 10¢ a bbl. under the posted market.

That comment was made by Everett F. Wells, president of Ashland, who noted that, "Based on Bureau of Mines figures, the price of domestic crude has declined an average of approximately 15¢ a bbl. since Jan. 1, 1958. Of the estimated 60% of domestic production which has been affected by these price declines, the average reduction was approximately 25¢ per bbl.

"And during that period there has been a reduction of more than 30¢ per bbl. in our cost of crude purchased from other areas, representing almost 50% of our current refinery runs."

Illinois production is averaging 211,000 b/d, nearly all of which is in the Basin area.

Should the cut in Illinois Basin postings spread to all other buyers in the area, it could have an impact on some Canadian crude prices.

Some crude sales contracts of Imperial Oil Ltd. escalate on postings in the Illinois Basin.

When a price cut for Illinois Basin crude was initiated in December, 1957, it required slightly more than three months for all the purchasers to trim from $3.15 a bbl. to $3.

Carter division of Humble Oil & Refining Co., which, like Imperial, is a Jersey Standard affiliate, was among the last to reduce postings.

Road-Building Waste Kills Fuel Tax Hike

Congress is laying the ground work for a major investigation of scandals in the Interstate Highway Program.

With over $1.5-billion a year in federal gasoline and diesel fuel taxes being poured into this federal road program, the oil industry has an understandable interest in the investigation.

Already, a special House investigating committee, by its exposure of malpractices in the road program earlier this year, killed any possibility of an increase in the federal gasoline tax during this session of Congress.

The special committee, headed by Rep. John A. Blatnik (D.,Minn.), is preparing for next year's investigation by checking into dozens of leads concerning corruption in the highway program.

The most sensational episode to be hauled up before the public to date centers on the graft and corruption that occurred in the building of a 13-mi. by-pass near Tulsa.

The construction of this link between the Rogers and Turner Turnpikes was shown by the committee to have been permeated with illicit practices.

Testimony showed a lack of inspection control over the project by federal and state officials. This lack of control opened the way to falsifying of reports, which was openly testified to by state employees.

Oil Equipment Sales Off 10%

Net sales of petroleum equipment in the U.S. and Canada—a good barometer of oil activity—sagged almost 10% below last year in the first quarter of 1960.

Consolidated net sales of 21 companies reporting to the Petroleum Equipment Suppliers Assn. totaled $171.8-million during the first three months, down almost $19-million from last year.

The biggest drop in sales was in oil country tubular goods and line pipe, off $11.5-million from the first quarter of 1959.

Of this decline, $9.2-million was accounted for by a decline in the sales of drill pipe, tubing, and casing.

The fall in revenues from pipe sales was somewhat softened by moderate gains in sales of continuous-weld and buttweld pipe, and pipe classified in the "all other" category.

Sales of equipment other than tubular goods were down $7.2-million, or more than 7%, from a year earlier.

Revenue from major drilling equipment fell $1.7-million, a decrease of 29.9% from first-quarter 1959. Sales also took a substantial drop in pumping units and parts, $1.5-million, and in prime movers and unspecified nontubular items, each category with reduced income of $1.3-million plus.

Revenue from producing equipment generally was up—but not by much.

Wellhead equipment scored an increase in sales of $476,000, or 24.8% over 1959. Sales of miscellaneous valves and fittings were up $376,000, or a little over 6%, while sales of subsurface pumps and parts were up $152,000, or 2.5%.

The larger equipment companies bore the brunt of the sales slump, with revenues flopping 12.2%.

Six companies with sales that average over $50-million annually reported that revenue during the first quarter fell to $124-million, representing a loss of more than $17-million in business from the like period last year.

The decline in first-quarter sales wasn't quite so severe for smaller companies—those with annual business volume of less than $50-million each. Their sales decreased 3.3%.

Sales of 15 companies in that category totaled $47.8-million in the first quarter, down from $49.5-million in 1959.

WHEN YOU SELL SUN QUALITY PRODUCTS, SALES TO LOCAL FLEETS COME EASIER

An increasing share of the lubricant profits from the busy, bustling, local fleet market . . . taxis, laundries, dairies, and the like . . . can go to the independent oil marketer.

You can get all the help you need from Sun . . . to sell your story and set up your service facilities.

Let Sun help you build and maintain your reputation as a supplier of top-quality products. Sun has a line of petroleum products broad enough to satisfy every customer's needs.

You can sell a Sun product under your own brand name anywhere. In many areas you can get a distributorship for Sunoco fuel oils and other branded Sun products. In some areas distributorships for Blue Sunoco gasolines are still available.

Write to SUN OIL COMPANY, PW-6, 1608 Walnut Street, Phila. 3, Pa. In Canada: Sun Oil Company Limited, Toronto and Montreal.

MAKERS OF FAMOUS CUSTOM-BLENDED BLUE SUNOCO GASOLINES

You save drilling dollars with a Baroid Mud Program

THE MUD PROBLEM AND ITS SOLUTION

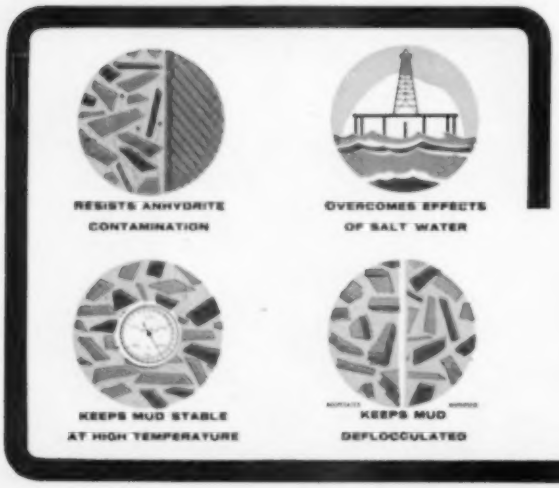
Q-BROXIN*

When your drilling problem is to reduce viscosity and gels in salt, gyp or fresh water muds, Q-BROXIN is your answer.

For example, in a complete Baroid mud program used on a well in Timbalier Bay Field, Lafourche Parish, Louisiana, a Q-BROXIN — bay-water mud was successfully maintained in spite of salt water flows and adverse shale conditions. The total mud cost was only half that of wells to similar depths. Over 14,000 feet of 9⅝" casing was set and cemented without difficulty.

Q-BROXIN mud treatment controls flow properties in the presence of calcium and chloride contamination and such muds are stable at high temperatures. Inhibited muds are easy to control with Q-BROXIN.

A Baroid mud program *is planned* to give *you* drilling success and *save your drilling dollars.*


RESISTS ANHYDRITE CONTAMINATION
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6030

What's New / IN THE INDUSTRY

The running controversy between Derby Refining Co., Wichita, and the Kansas Corporation Commission produced heated disagreement and more action last week.

Derby appealed to Sedgwick County District Court to invalidate the commission's June 1 order shutting in wells in Sedgwick and Sumner Counties, where it is the lone buyer.

Derby contended the commission action was "an attempt to fix a minimum price for crude," and that no evidence had been offered to support findings of waste, physical or economic.

The commission, meanwhile, ordered an investigation to determine if Derby's pipeline in the two counties is a common carrier.

A hearing will be held in Wichita next Friday.

Producers pressing the pipeline case claim they have purchasers for 2,000 b/d of crude, but that Derby refuses to move it or negotiate a tariff rate. A "war chest" is being set up to continue the fight against Derby's 20¢-per-bbl. price cut, which started the dispute.

•

The "outer fringe of abutting islands" will be used by Texas as the starting point in measuring the three leagues conceded to it by the U.S. Supreme Court.

Land Commissioner Bill Allcorn says Texas has "always held the position that its Gulf boundary is the outer fringe of abutting islands."

Neither the U.S. Bureau of Land Management nor the U.S. Coast & Geodetic Survey disputed this contention in the past, he says.

•

New Mexico's unit allowable for July includes a 9 b/d increase for the northwest part of the state.

The Oil Conservation Commission made no change in the July allowable for southeastern fields, setting the unit allowable at 33 b/d. For the northwest, however, it was boosted to 70 b/d, up 9 b/d from June.

The increase in the Northwest is tied in with El Paso Natural Gas Co.'s plan to complete additional capacity in its compressor stations by July 1, enabling it to take more casinghead gas.

The commission has limited oil production in the Northwest to El Paso's ability to take casinghead gas.

The Commission estimates for July are: Southeast, allowable 302,750 b/d, production 248,255 b/d; Northwest, allowable 48,994, production, 41,645 b/d.

•

Interamerican Refining Co. says it was offered Russian crude this week at $1.90 per bbl., delivered at Bayonne, N.J.

This is 60¢ to 85¢ a bbl. less than the posted price for Venezuelan crude of the same gravity.

Interamerican rejected the offer immediately. A company spokesman says the cabled offer covered an unspecified amount of 31-gravity Black Sea crude.

This is the first report of a Soviet crude offer to a U.S. firm in recent years, although Russian gasoline was offered to Canada recently at 15¢ per gal. (PW—Jun.10'60,p12).

•

Worldwide surpluses of crude and products were cited by Atlantic Refining Co. this week in reducing its work force from 3,750 to 3,000 employees.

Only Philadelphia area operations were affected.

R. D. Bent, vice-president and general manager of manufacturing, said the layoffs were due to the "radically changed conditions within the oil industry."

To achieve the reduction, Atlantic granted early retirement to some employees, laid off others, and has not replaced employees who left since Jan. 1.

•

Stockholders will vote June 28 on a proposal to shorten the name of Halliburton Oil Well Cementing Co. to Halliburton Co.

Halliburton officials say the abbreviated name reflects the company's expanded business affairs more accurately.

It was organized in 1924 as an oil well cementing firm, but since then has added other major services. The stockholders' meeting will be held at Duncan, Okla., and approval is anticipated.

INTER-URBIA

Growth Market for the Gas Age

Concentrated in the New York-Newark Interurban complex are more natural gas consumers than in any single *state* of the union. Not satisfied to remain America's Number One Market for consumer goods and services, Interurbia expects to grow another 10% this year.

Such a unique combination of growth and stability means unequaled security for gas producers supplying this modern City State of the Gas Age.. Via Transco, producers in Texas and Louisiana can tap the market where the most people are.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION

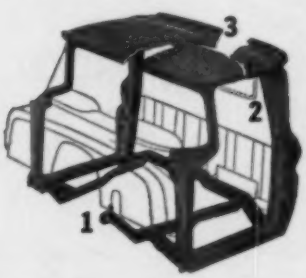
CHEVROLET

PROOF THAT CHEVY'S BIG NEW CABS ARE BUILT FOR A BETTER DAY'S WORK!

"THESE TRAILS WOULD SHAKE THE CAB OFF AN ORDINARY TRUCK... BUT NOT OUR CHEVY"

Few trucks are subjected to the body-wracking beatings that are part of a day's work for this Chevrolet Series 60 pulpwood hauler, owned by J. E. Fox, North Carolina logging contractor. As Bobby Fox, a partner in the business points out, "Loaded full-up with pulpwood, we drive right over stumps and potholes you'd think would tear the truck to pieces. These trails would shake the cab off an ordinary truck, but not our Chevy. You can always replace chassis components, but when the cab goes, you have to buy a new truck. Chevies are built to hold together longer. That's why we buy 'em."

■ *No matter where* you haul, you'll profit by the new toughness that's built into Chevrolet's truck cabs for '60. You'll benefit from a cab that's constructed to stand up to slam-bang runs over rough terrain, a cab that stays in A-1 shape years longer. Here are some of the ways in which Chevy assures this tight, maintenance-minimizing performance: **1.** Extra reinforcement where it counts reduces vibration; provides a solid foundation for cab sheet metal. Tough new longitudinal sills reinforce the underbody. **2.** Extra-sturdy door openings—box-section pillars and sills assure *lasting* alignment. Doors stay weathertight with a minimum of maintenance. **3.** New double-walled roof panels are sturdier than ever. Husky box-section pillars provide the solid roof support that means greater safety and maximum cab strength. ■ And there's a world of comfort for you, too. A *wide* seat, for instance, with a comfortable foam cushion and springs that soften the ride yet give you extra support where it's needed. And there's more head, hip, shoulder and leg room for husky drivers . . . a horizon-wide windshield with 26% more glass area, a new see-at-a-glance instrument panel, new conveniently suspended pedals. ■ First chance you get, visit your Chevrolet dealer and drive one of these new Chevies. Feel how Torsion-Spring Ride takes the bounce out of bumps; learn for yourself why it will lengthen truck life and lower maintenance costs. Check up on Chevy's famous gas-saving 6-cylinder and V8 engines. Then you'll know, for sure, why you can expect thousands of extra miles out of a Chevy; why you can be sure of more work per day at least expense. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



1960 CHEVROLET STURDI-BILT TRUCKS

CHEVROLET

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
June 17, 1960

Government attorneys are busy opposing attacks on the oil imports program in Washington and in Boston. The two current court tests involve Gulf Oil Corp., which wants to change the method of allocating residual fuel oil imports, and the Car-Care System, of Boston, which is attacking the constitutionality of the control program.

In Washington, Gulf's challenge has been postponed until late September when a federal appeals court will hear the case. The government won the first round of the Gulf case when a federal district court dismissed the company's suit. In Boston, government lawyers are preparing to seek dismissal of the Car-Care case. Car-Care, which has been refused an allocation to import products, is asking the court for an early hearing, but no date has been set.

•

The CATC gas sales case—now doing a repeat performance before the Federal Power Commission—is in for a long regulatory run. Hearings on the case, in which the CATC group will try to justify a higher price for offshore Louisiana gas, resumed this week before an FPC examiner. CATC witnesses are undergoing cross-examination—a lengthy process. Then, following a probable recess, opponents of a higher price will present their case. An examiner's decision may not come before fall, and FPC ruling before 1961 is unlikely. The case was tossed back to FPC by the U.S. Supreme Court, with an admonition to require further evidence before approving prices.

•

The coal industry's lobby is turning to full-page newspaper advertisements to push Congress for a new fuels study. The National Coal Policy Conference placed the ads in Washington and New York dailies this week in an effort to drum up support for resolutions pending in Congress to create a special joint-committee study of the need for a national fuels policy. Part of the advertisement was used to ask, "What about end-use controls?" But a direct answer was dodged. The coal pitch is that the study will be a sizeable undertaking, probably requiring two years or more, and that it would be "unthinkable" that anyone could suggest now what might be concluded in a final policy statement.

Coal leaders now have only three more weeks to get action from Congress for the study. Several oil companies are working in opposition to the resolutions, but fear that coal's recent political success in reducing residual oil imports will make the congressional fight even more difficult for the oil industry.

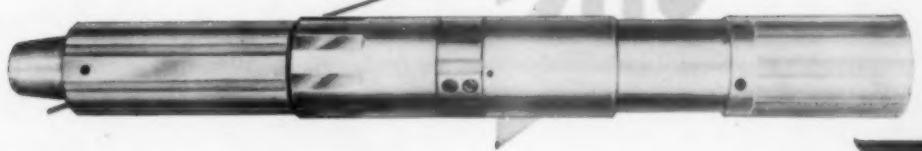
•

The atomic industry, already falling behind predictions for competition with oil and gas, now faces an additional roadblock. A federal appeals court has ruled that the Atomic Energy Commission must certify that a nuclear reactor will operate safely before allowing construction to start on a project. AEC practice has been to let construction proceed if safety methods are being worked out, with a safety ruling coming before the reactor starts operating.

•

The Senate may avoid a depletion vote this year. Antidepletion members are trying to work out an agreement with the Senate leadership under which the leaders would help kill a bill allowing tax benefits for self-employed persons. In return, the antidepletion bloc would not press for a cut in percentage depletion permitted oil and gas.

PERFECT PERFORMANCE 200,000 TIMES



Formation testing record books have *all* had to be rewritten since Halliburton introduced the Hydro-Spring Tester. The Tester set an unprecedented pace by completing its first 20,000 jobs WITHOUT A SINGLE MIS-RUN traceable to the tool . . . and in the hundreds of thousands of jobs run since that time, mis-runs due to Hydro-Spring Tester Tool failures have amounted to less than *one-tenth* of one per cent!

This is the kind of performance record that puts *real meaning* in the statement . . . "For testing results you can trust . . . trust Halliburton."

THIRTY SECOND TECHNICAL SUMMARY

The Hydro-Spring Tester is basically a combination tool consisting of a locked open by-pass valve and tester valve. The by-pass valve remains open going in the hole until weight is applied on the drill string to set the testing packer. The tester valve opens after a definite time interval following the closing of the by-pass valve and expansion of the packer. This makes possible an accurate reading of the initial hydrostatic mud weight. Positive indication is given at the surface when the tool opens.

The proven design and simple construction of the Hydro-Spring Tester share the primary responsibility for the tool's overwhelming success. Call on this winning team for your next formation testing operation.

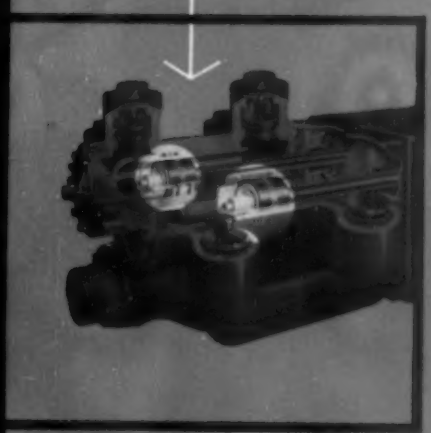
"FOR TESTING RESULTS YOU CAN TRUST"

HALLIBURTON TESTING SERVICES

HALLIBURTON OIL WELL CEMENTING COMPANY – DUNCAN, OKLAHOMA

the name Mission here

is your guarantee of real savings here



Take a good look at this Mission piston. Mission was first with this design, although today you'll see other pistons made to look like it. You see, the engineering advances that have gone into Mission pistons have made them the standard by which all others are judged.

Replaceable rubbers, long-life rubber compounds, special fabric backing, one-piece forged steel bodies, hardened piston flanges, close tolerances, wear groove in piston body flanges, API taper for piston bore, and easy and reliable snap rings and end plates are some of the specific reasons Mission pistons are superior.

The unique Mission guarantee, that Mission products will outperform any other products, is the big reason that removes all chance. You get the best only from Mission; so get only Mission—genuine Mission with the name on them—pistons. Play it safe!

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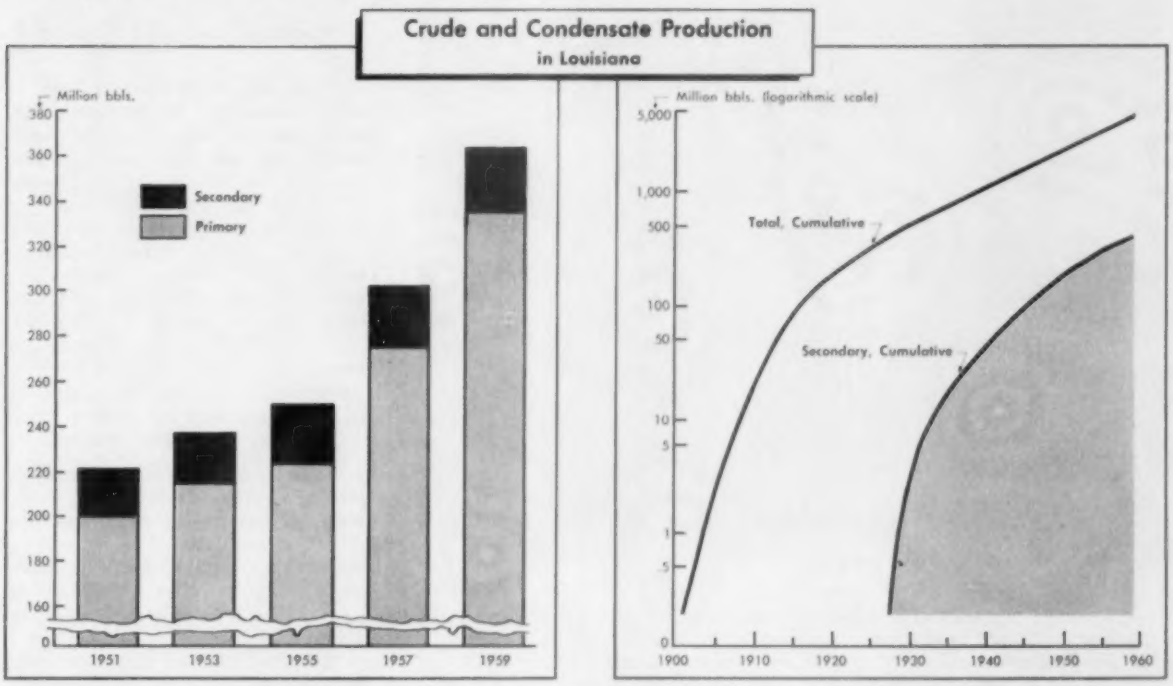

SECONDARY PRODUCTION has grown steadily in Louisiana, but slower than primary production. This ratio may change as . . .

Secondary Projects Gain in Louisiana

Look for a big jump in the number of secondary recovery projects in Louisiana this year.

That is a key point in the 1959 report on secondary recovery and pressure maintenance projects just issued by the state's Dept. of Conservation.

The report, prepared and edited by A. Fred Peterson, Jr., and Carlton V. Hudson, under the supervision of Ashton J. Mouton, commissioner, contains detailed accounts of each of the present projects in the state.

The state's 1959 report shows that there are 143 reservoirs in which some type of secondary recovery is now being carried out. By year-end, the number is expected to reach 180.

The 143 reservoirs now affected are in 69 fields throughout the state, inincluding offshore.

The presently active projects are expected to result in the recovery of an additional 895-million bbl. of crude and condensate.

The total cumulative production of crude and condensate from such projects was 417,023,281 bbl. through Dec. 31, 1959. Annual production from these sources has risen steadily over the years (see charts, above), but last year's 28,152,612 bbl. was slightly under the peak year of 1958, when 28,843,389 bbl. of liquids was produced.

The average ultimate recovery for all secondary recovery and pressure maintenance projects in the state is just short of 50% of the original oil in place, the report discloses.

"With better engineering technology in regard to any program of induced permeation," it continues, "it is felt that the percentage ultimate recovery figure will grow even larger."

Additional recovery expected from any particular project is measured in terms of "barrels per acre-foot," a new concept in such studies.

The commission feels that use of this measurement "will be more useful to all interested persons, and is a more accurate way of showing how much additional recovery may be expected."

Previously, recovery has always been reported in barrels per acre. The commission contends that such a unit has no relation to sand thickness, and, as such, "is deceiving and next to worthless."

The commission believes that an operator will be more interested in starting a secondary recovery program if he knows more precisely what recoveries may be expected in any particular area or sand.

Updip recovery projects are becoming more significant in the overall statewide picture, with more than 70 such projects expected by the end of this year.

The method involves injection of gas which migrates upstructure, forcing oil and water down.

Though the first such project was tried in the state nearly ten years ago, it is only within the past few years that the method has really caught on.

The offshore Grand Isle Block 18 field has 14 such projects listed in the current report. "And by the end of 1960," it adds, "that figure will be three or four times higher."

The conservation commission credits the state's "force-pool" act with much of the increase in secondary recovery programs.

Act 157, adopted by the legislature in 1940, gives the commissioner power to force-pool a field or reservoir for the purpose of cycling, and to regulate secondary recovery.

"This act alone explains why, prior to 1940, there were only a handful of secondary recovery programs in Louisiana," the report says.

LARKIN
...Through Your Supply Store

Arctic Permit Deadline Near

The full extent of the interest in the oil prospects of Canada's Arctic lands will be known next week when the deadline ends for exploration permits.

Friday, June 24, is the last day for conversion of application priorities into official permits.

Fourteen companies and 35 individuals hold applications covering some 142-million acres on Canada's northern islands and seabed.

Application priorities were issued in lieu of permits while the government worked out new regulations for its northern lands.

Northern Affairs officials say they don't expect much action until the last few days before the deadline.

The reason for this, they say, is the saving in interest cost. Companies and individuals don't want to tie up money until the last minute.

Some industry sources add, however, that interest in the Far North may be dampened by the Canadian participation and ownership clause contained in the new regulations. The clause generally limits leases to companies registered in Canada or owned at least partly by Canadians.

Two companies and two individuals had obtained 75 exploration permits covering 3,848,258 acres as of late last week.

In addition, say officials, three companies have said they will be submitting conversion requests.

The companies and individuals that have converted applications to permits are:

William Sheeky and associates, six permits covering 237,593 acres; Round Valley Oil Co., Ltd., 50 permits totaling 2,746,836 acres; Round Valley with Talent Oil Co., Ltd., three permits covering 126,564 acres; and George Radisichs, 16 permits totaling 737,286 acres.

These permits are located along a belt at 75 degrees latitude—on Bevon Island, at 90 degrees longitude; on Bathurst Island, at 100 degrees; and on Melville Island, at 110 degrees.

Lands not under permit by June 24 will be offered again on a first-come, first-served basis starting July 4.

The permits have a maximum life of 12 years. Deposit requirements are 5¢ per acre for the first three years and 25¢ per acre for the second three years. Renewals start at 30¢ per acre and stop at 50¢ per acre.

HERE'S WHY:

Jim Phillips, Partner in King-Phillips, Inc., is running more Reed "Y" bits these days. Mr. Phillips' company operates its West Texas rigs from offices in Fort Worth and Midland. Asked why he's running more Reed bits, he said: "We've been using Reed bits, tool joints, and drill collars on our rigs ever since we've been in the contracting business. We choose the equipment that we know will perform, and Reed equipment never lets us down. Sure we're running more Reed bits now. We like the way they dig. And, we like the way Reed engineering and research keep us ahead of the game."

Mr. J. H. Phillips is a successful drilling contractor because he has an efficient, experienced organization that knows the contracting business. We are happy to count him one of our satisfied customers. It is customers like this, who demand the best equipment, that keep us working around the clock to supply Reed "Y" bits, tool joints, and drill collars in ever-increasing quantities.

If you are in the oil business, there is a Reed representative near you. Let him tell you the Reed story. He can help you.

BIT RECORD — REED ROLLER BIT CO.

Date 2-9 1960

Contractor KING & PHILLIPS RIG #4 Oil Co County ANDREWS

Lease & Well No. Sec. TW R Field or Town NORTH COWDEN

Type Drawworks BETH. S-45 Tool Pusher MR. ALPINE

Length Drill Collar OD ID Drillers WILLIAMS

Tool Joints 4½ EXTRA HOLE ASH

No. 1 Pump 225 BETH Engine Power 300 PARUM

No. 2 Pump Engine Power Salesman ANDERSON Dist. 52

Spud Date Under Surface 2-9-60

CASING SIZE	DEPTH	DATE
7⅝	230	2-9-60
TUBING	4625	2-18-60

Total Depth and Date 4625 2-18-60

Bit No.	Bit Size	Bit Type	Used or New Reed Bit	Depth of Bit	Footage Each Bit	Hours Each Bit	Bit wt. on Bit (1000 lbs.)	R.P.M.	Pump Liner Size	S.P.M.	Jet Size	Jets Open	REMARKS (Include Mud Wt., Viscosity, Formation Last Bit, Fishing Time and Date, Any Bit Records)
1	11	Retip		230	230	6½	All	100					
2	6¾	YT3-J	N93939	1644	1414	16½	25	90	6	60	¼	3	
3	"	YT-J	N93240	2920	1276	25	35	85	"	"	"	2	
4	"	YT-J	D91577	3325	405	18½	"	"	"	"	⅜	3	
5	"	YT-J	D91575	3828	503	19	"	"	"	"	"	"	
6	"	YS1-J	N96557	4064	236	16¼	"	"	"	"	"	⅜	
7	"	YM-J	103940	4186	122	10½	"	"	"	"	"	"	
8	"	YM-J	201576	4277	91	10	"	"	"	"	"	2	
9	"	YM-J	201583	4374	97	11	"	"	"	"	"	1	
10	"	YM-J	201575	4504	130	13½	"	"	"	"	"		
11	"	YM-J	201585	4625	121	15½	"	"	"	"	"		

REED

REED ROLLER BIT COMPANY *Houston 1, Texas*

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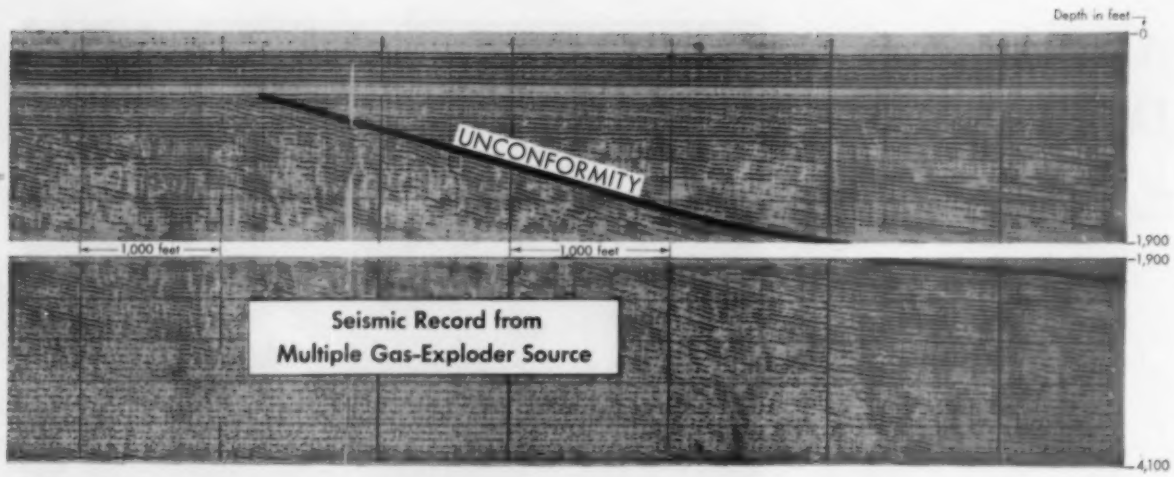
GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS.



UNCONFORMITY shows clearly on this continuous profile record made with a multiple "gas exploder" source off California. Now . . .

'Gas Exploder' Survey Goes Commercial

The "gas exploder" type of continuous seismic profiling device can now be used for commercial exploration surveys of strata more than 4,000 ft. below the ocean floor.

The development of continuous-profiling seismic exploration instruments has been moving forward rapidly during the past few years (PW—Apr.22'60,p49; Jan.29'60,p23; Mar.13 '59,p54).

Until recently, however, the depth from which reflections could be obtained was a limiting factor.

But very recent results off the California coast have demonstrated that continuous profiling, with the gas explosion source, are possible at depths greater than 4,000 ft. (see record, above).

The instrument used by Marine Geophysical Services Corp., Houston, has been in service off the U.S. West and Gulf Coasts, off the coasts of Peru, England, and Thailand, and in the Gulf of Paria and Lake Maracaibo.

The gas exploder device is an outgrowth of Marine Geophysical's "Sparker" system, which used a low-frequency sound generated by a spark discharge.

The new survey procedure is essentially the same, with the substitution of the gas exploder as the source of sound waves. Marine Geophysical says it has been using the newer type since April, 1959, for various clients. Some of the work was done in conjunction with Alpine Geophysical Associates, Inc.

The company adds that the basic source unit was developed at the Lamont Geological Observatory, with commercial rights assigned to Alpine.

Marine Geophysical operates under exclusive agreement with Alpine for petroleum exploration survey work, according to Charles B. Officer, who heads the Houston firm.

The seismic source is the explosion of a mixture of propane and oxygen.

The explosion, in an open chamber, is detonated by a spark, triggered in the same manner as the Sparker.

The explosion chamber is cylindrical, and is towed beneath the water in a shaped "fish."

Only small quantities of the explosion materials are required—about one 244-cu. ft. tank of oxygen per day per exploder, and about one-tenth of a 60-lb. tank of propane per day per exploder.

This multiple gas exploder source consists of three explosion chambers, towed individually and fired simultaneously, forming an in-line shot array with a spacing of approximately 20 ft. between each unit.

The company utilizes three exploder chambers, towed in individual "fish" and fired simultaneously.

When Marine Geophysical started work with the gas exploder technique, it used a single explosion chamber and a single hydrophone as a detector, along with its Sparker type receiving and recording system.

With this first setup, the company obtained continuous reflections on the West Coast to 1,500-2,000 ft. below surface, on the average, and to 2,000-3,000 ft. along the Gulf Coast.

The company then made changes in both the receiving and recording systems, and in the survey system, and turned to use of its multiple gas exploder. It then began getting continuous reflections down to 2,500-3,000 ft. below the ocean floor off the West Coast.

Marine Geophysical also has replaced its single hydrophone detector with a hydrophone array, consisting of several detector elements spaced along the detector cable.

By employing both of these advances, the company has been able to achieve continuous reflections to depths greater than 4,000 ft. off the West Coast.

The source and detector arrays resemble a "T" spread, with the detectors along the long leg and the multiple gas exploder assembly forming the cross bar.

The explosion chambers are virtually unaffected by wave and swell action.

Since the chambers are towed beneath the water surface, the action of the sea, including the pitch and roll of the survey boat, have little if any influence on them.

Surveys can be conducted in almost any sea conditions, from moderate to rough.

Various types of craft can be used successfully for the surveys—even a float-equipped airplane.

The operation can be conducted by a two-man crew. As with the Sparker, the equipment can be set up and the survey craft can start operations within hours.

"There are no particular requirements for the survey boat beyond that it be seaworthy for the area of operation," says Officer.

"For inshore and river surveys,

Here's how one operator

SAVED 5 DAYS RIG TIME

with new Johnston tool!

"The Johnston Selective Zone Tester saved us five days rig time!"
Mr. Ernie Walker, Drilling Superintendent, Calvert Drilling Co.

The Jordon #1 was drilled by Calvert Drilling Company in Dewey County, Oklahoma and bottomed at 11,000 feet.

Drilling the well accomplished only part of the job. Now it became necessary to evaluate all possible producing zones and complete this well if it proved commercially productive. Just as during drilling operations, any delay in evaluation is costly. An idle rig, inoperative tools, equipment breakdown, needless action—all mean lost dollars.

The job of determining subsurface formation conditions was given Johnston Testers. **A total of nine Selective Zone Tests were run:**

Test interval—9534 to 9550 feet. Dual packers top and bottom. Used Johnston Selective Zone Anchor. Good test! Released tool, picked up 8 feet to interval 9526 to 9542 feet. Re-set tool. Another good test!

Test interval—9564 to 9685 feet. Dual packers top and bottom. Used Johnston Selective Zone Anchor. Formation failed to support mud weight. **Picked up tool and re-set seven times at different intervals.** Anchor worked perfectly, did not slide at any time!

The ability to set, release and re-set the Selective Zone Anchor allowed testing of many zones with just one trip in the hole. Extra time was saved since long tailpipe did not have to be run.

Selective Zone Testing with the new "CO" Combination Shut-In Hydraulic Tester and the new Selective Zone Anchor can save you money, too! Call Johnston Testers and learn why you get more from a Johnston Test!

JOHNSTON TESTERS, INC.

P. O. Box 98 Houston 1, Texas

rafts or small cabin cruisers have been used successfully. For relatively inaccessible inland lake areas, the equipment can be mounted on a float airplane and flown into the lake, and the survey made from the plane.

"Surveys are made at a boat speed of 4 to 5 mph.

"The repetition rate of the gas explosions is once every two seconds, giving a shot every 12 to 15 ft. of horizontal travel."

The record produced by the device is similar to that of a corrected variable-density plotter section.

"The record may be read essentially as a geologic cross-section, with the horizontal scale representing distance and the vertical scale, depth," observes Officer. "The vertical lines on the record are the survey fix location points."

The delineation of details of an underlying geologic structure reportedly is particularly good with this technique.

"The depths of penetration with this system off the West Coast are comparable to, but somewhat less than, those obtained with conventional seismic records," says Officer.

"The detail with which the underlying geologic structure is delineated is considerably better.

"Interpretation of these records permits not only a structure contour map of the underlying geologic horizons to be drawn, but a map of the configuration of the fault planes as well."

Small Savings Make Big Sense

Little chips from every angle are adding up to big cuts in the total cost of drilling and completing shallow development wells in California's Coalinga and Kern River fields.

Shell Oil Co. has reduced the cost of an average 2,000-ft. well in Coalinga from an average of $23,000-$24,000 in 1956 to a current average of $18,000-$19,000.

Tidewater Oil Co. has cut the cost of an average 1,000-ft. well in Kern River field by 25% to 30%—to less than $14,000 per well.

The two companies' successful cost-reduction programs were described at a recent meeting of the San Joaquin Valley Section, American Institute of Mechanical Engineers, in Bakersfield, by Shell's Don Zimmer and Tidewater's Richard Schuppert.

Part of Shell Oil Co.'s money-saving program at Coalinga is due to bidding wells and locations in groups and to close operator-contractor cooperation.

The company found it could get lower footage bids from drilling contractors by programming its development wells in groups.

The contractor benefits by realizing a work continuity of perhaps 35 to 60 days by getting a 20-well contract, and the operator saves on moving costs.

Drill sites and roads are designed to minimum requirements—"not for Cadillac travel." This has reduced the cost of preparing locations by about $500 per site in the past three or four years.

Shell also works out a schedule of materials and services so there is no downtime waiting on cement or for logging operations.

If the contractor is not familiar with the field, the company will review techniques with him.

Shell also has reduced hole and casing size to 5½ in. and 4½ in., respectively. In completions, the company now uses 2-in. tubing and ¾-in. sucker rods.

The company makes other savings by fabricating guide-shoes, baffle collars, liner shoes, casing heads, and even its own water-shutoff tool, which costs only about $50 to run.

In production equipment, Shell tailors the pump to the well's expected volume and then offers the pump units for a package bid.

Further savings are made by substituting pump units. A few years after a well is completed, the original pump unit may be oversize for the volume being handled.

Shell then buys a smaller unit for the old well and puts the pump unit from that well on a new one.

A combination of several "corner-cutting" factors is saving money for Tidewater Oil Co. at Kern River field.

Minimum grading is done at the well sites.

Reclaimed pipe is used for the wells, which are completed with 8⅝-in. water string cemented at about 600 ft. and 6⅝-in. liner hung at about 1,000 ft.

The company has not taken the smaller-pipe route because of the use of heaters in completing the wells.

Quick-setting additives are used to reduce cementing time. And the company has its own wellhead equipment fabricated locally.

Tidewater also tries to have wells drilled in groups.

Louisiana Rule

Louisiana's order restricting multiple completions of oil wells has touched off some anger, much surprise, and nearly total confusion among operators.

Ostensible purpose of the order, announced last week by conservation commissioner Ashton J. Mouton, is to restrict increases in future crude production thereby eliminating the need to reduce the state oil allowables any further.

A PETROLEUM WEEK survey of major companies, independents, and contractors active in Louisiana evoked a wide gamut of responses, most of them tinged with uncertainty as operators tried to evaluate the order.

Gas wells are exempt from the order, which, generally, limits multiple oil completions to those fields already having them.

Louis J. Winfiele, the commission's chief engineer, explained that the ruling limits future multiple oil completions to those areas in which such completions were authorized prior to June 7.

He added that "about a dozen" pending applications for multiple oil completions have already been returned to operators—the first tangible effect of the order.

Winfiele explained further that if a zone in a field has been approved for multiple completions and a new zone is discovered, a multiple completion involving the new zone would not be authorized.

Multiple completions will be authorized, however, where there is only one oil zone produced, regardless of the number of gas zones involved. A gas-gas-oil completion, for example, will be approved.

The biggest impact, of course, will be on newly discovered fields. Winfiele stressed that the order is intended to be prospective in nature.

Winfiele also said that the order should not have come as a surprise to operators. "We brought up this subject at a similar market-demand hearing last year and called for assistance to meet the problem. Actually, however, there has been an increase in such completions since that time, so we had to take some action," he said.

First reactions from operators indicate that most feel the order will have some adverse effect on operations. Some also question its legality.

An official with one big offshore company told PETROLEUM WEEK:

"The ruling is not a very wise move. It's not efficient to tell an oper-

Raises Doubts

ator how he should complete his wells. A proration body should prorate a reservoir and leave it up to the operator on how to get the oil out.

"There is all kinds of talk that the federal people are thinking of stepping in to regulate production on their part. It could be the state is doing this to cause the federal boys to raise their eyebrows."

The production manager of another major said: "We can't justify single wells offshore. We'll go ahead and drill dual wells, but just produce from a single zone until the order is lifted. I checked with our lawyer this morning and he said he didn't know if it was legal.

"It's my personal opinion that the order won't stand. Many of the multiple completions are being drilled on state-owned leases. If there are no wells drilled, then the state will suffer."

A major drilling contractor said he hadn't determined what the new ruling means from a contractor's point of view. "We'll have to hear what the operators have to say first," he said. "Frankly, though, I don't know whether an operator is going to drill more single wells, or stop drilling altogether until he can go back to drilling multiples."

Two other major offshore operators agreed that the order "is a serious matter" and that the effect almost certainly "is bound to be adverse."

One of these added that "drilling multiples when you can produce from only one zone is a hell of a way to make money."

Nearly all operators feel that further evaluation and study will be required before full impact of the order will be known.

Several spokesmen noted that while the order seems simple and clear enough, "we won't know just how it will affect us until some specific situations arise."

One said that, "I think we'll really see the significance when we sit down to plan future wells. The order restricts multiples, but doesn't prohibit them. Our company most likely will go ahead and drill multiples, even if we can't get an allowable for more than one zone."

Another official indicated that the order is likely to lead to more hearings to determine whether a specific reservoir is a new pool or not. He added that that this could be a very difficult problem at times, particularly around salt domes.

SURE I'M RUNNING MORE REED!

HERE'S WHY:

M. A. Smith, Jr., President of Continental Rigs, Inc. (operating six inland barge rigs with drilling and workover capabilities to 20,000 feet), is running more Reed "Y" bits these days. Why? Mr. Smith says, "We are in a highly competitive business. Every piece of equipment we buy has to do the job we expect of it—and then some. We like the performance of Reed "Y" bits, and we're running more than ever before. They do the job. I also like the way the Reed men are on the spot with the information you want on hydraulics, field records, and other engineering suggestions."

Mr. M. A. Smith, Jr. is one of the many fine Reed customers who are using more Reed "Y" bits today than ever before. (We've had to put our research, engineering, testing, and manufacturing people on a 24-hour-a-day work schedule to keep up with the demand.) If you aren't using Reed "Y" bits today, you're missing a bet.

P.S.—Reed also makes the best tool joints and drill collars in the field.

BIT RECORD
RIG #8

Company PANO-TECH Lease WILLIAMS INC. Well No. #1 County ST. MARTIN
Contractor SMITH CORPORATION Toolpusher HOMER COX Field CATAHOULA
Section Township Range Globe Branch
Spud Date 12/3/59 T.D. 12/8/59 Inter. Comp.

DATE 1959	TRIP NO.	MAKE OF BIT	SIZE	TYPE	JET	BIT NO.	SERIAL NO.	DEPTH FROM	DEPTH TO	FOOT AGE	HRS. RUN	PTS. WT.	R.P.M.	PUMP PRESS.	SUB-VEY	FORMATION	REMARKS
12/16		Hughes	12¼	OSC3	″	9	45344		8516	105	8	15	150	2000	½	Shale	
12/17		Reed	″	YT-3	″	10	091411		8621	413	16½	20	150	1800	½	″	
12/18		Reed	″	″	″	11	091408		9034	394	17	20	150	2000	½	S&S	
12/19		Hughes	″	OSC3	″	12	46208		9428	289	14	20	150	2000	½	Shale	
12/20		Reed	″	YT-3	″	13	694578		9717	303	17	30	125	2400	½	″	
12/21		Reed	″	YT-3	″	14	694035		10020	104	12½	25	125	2400	″	Shale	
12/22		Hughes	″	OSC1	″	15	42303		10124	181	18	25	125	2400	″	Shale	

REED

REED ROLLER BIT COMPANY *Houston 1, Texas*
EXPORT OFFICE: 1011 INTERNATIONAL BLDG., NEW YORK 20, N. Y.
GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS.

Ammonia Helps Stop Casing Corrosion

Injection of ammonia has proved to be an effective and inexpensive method of combatting corrosion in unpacked flowing wells.

Atlantic Refining Co., which has tried the technique for 3½ years on wells in West Texas and New Mexico, says that none of the 90 wells treated with ammonia have developed casing leaks.

The company began the program in 1956 in the Wasson and Seminole fields of West Texas, and then added wells in southeastern New Mexico and elsewhere in West Texas.

The project was supervised by a chemical engineering group in Atlantic's Dallas laboratories, headed by Ken Terrell, and including Henry Stiff and Donald Anthony.

The operation is simple: Just inject anhydrous ammonia into wells twice a year.

The ammonia neutralizes the corrosive acids that form on the inner wall of the casing. The acids result from formation gases—carbon dioxide and hydrogen sulfide—combining with water vapor that condenses on the casing walls.

Terrell says ammonia injection does not lend itself to every type of well, but that in the sour-oil country of the Permian Basin it is providing complete protection.

"Before injection began," he explained, "there were 13 internal casing leaks in Wasson field and 6 in the Seminole field. Based on this leak frequency, there should have been as many as 12 leaks since 1956. But there have been none."

The total cost of the 90-well program conducted by Atlantic has been less than $5,000 per year, much less than that of conventional approaches to similar situations.

The $5,000 covers cost and maintenance of the special ammonia injection truck and equipment, labor, food and lodging for two operators, gas and oil for the truck, and the ammonia itself.

"There were two accepted conventional approaches we could have followed," Stiff relates: (1) sealing off the affected areas with packers and filling the annular space with oil containing a chemical corrosion inhibitor; and (2) periodic injection of inhibited oil into the annulus.

Either approach, says Anthony, is effective, but expensive. He estimates that the packer method would have averaged $1,500 per well, for a total cost of $150,000, and the inhibitor-oil wash treatment would average about $110 per well yearly.

Letting the corrosion run unchecked could force repair costs up to $20,000 per well.

Atlantic almost abandoned the whole idea about the time its pilot project was completed, because other similar industry attempts had failed.

In one case, the use of ammonia to inhibit corrosion in the vapor space of storage tanks had actually increased corrosion.

The fault here, says Terrell, was the presence of oxygen in the air acting on the ammonia to combine with the corrosive gases and water vapor.

"It's true the corrosion was speeded up," says Terrell, "but if oxygen is excluded, ammonia is an ideal inhibitor."

The ammonia injection idea got another black eye when equipment exploded during an experiment. But Atlantic found that, with proper

"Dog-eared" is a term sometimes applied to gravity and magnetics as exploration tools, but these "old guard" methods of exploration can teach many of us new tricks about getting certain prospects surveyed quickly, efficiently and economically.

A number of tails began wagging after explorationists stood up on their hind legs and took a new sniff at prospects via the gravity-magnetics route. If you are interested in cutting costs, while answering specific geologic questions, give us a whistle and we'll trot out our new Bulletin GM59-1, **"Gravity-Magnetics . . . what they can and can't do for the explorationist."**

GEOPHYSICAL SERVICE INC.
800 EXCHANGE BANK BLDG. · DALLAS 35, TEXAS

See why ALCOA ALUMINUM makes a good design habit

Requirement: strength without unnecessary weight plus superior corrosion resistance for world's first aluminum fly-in rig

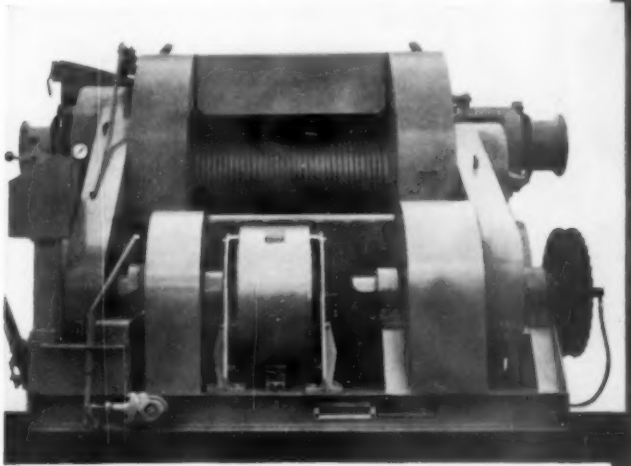
Key to good design: aluminum magnesium alloy 5456 developed by Alcoa

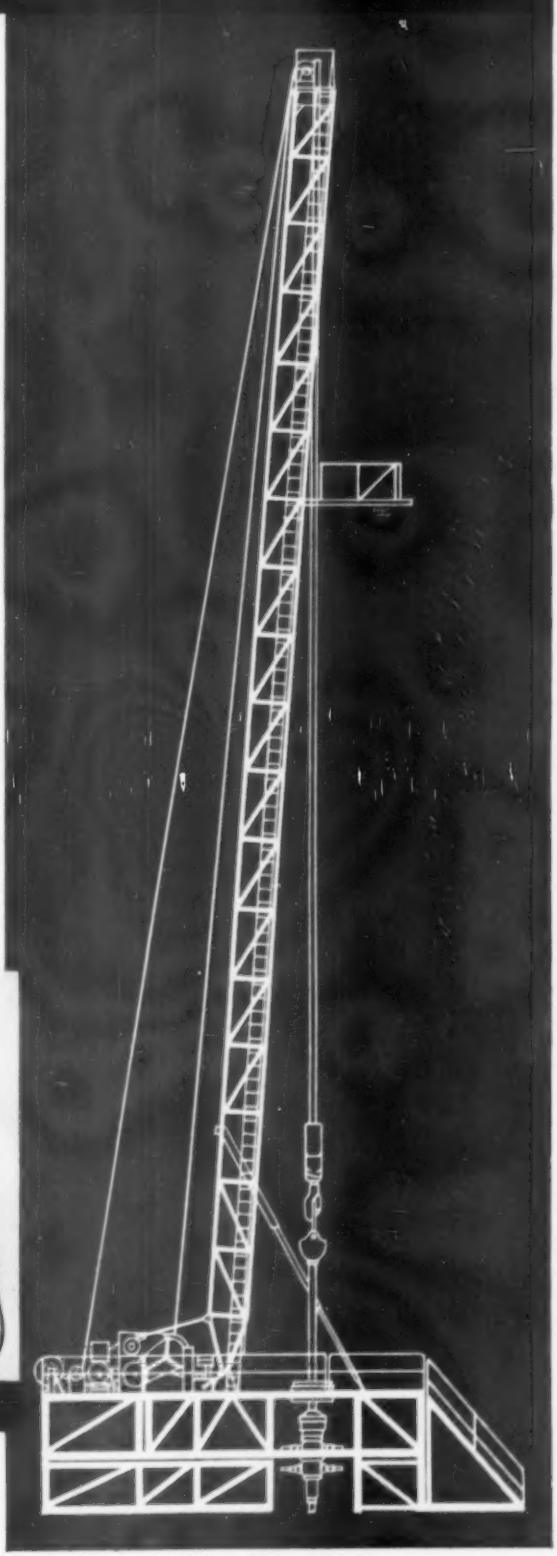
With tests in actual drilling muds, ALCOA engineers proved the superior corrosion resistance of aluminum magnesium alloy 5456 for use in the world's first aluminum fly-in drilling rig. And the excellent strength-weight ratio of this ALCOA®-developed alloy made it perfect for use in the subbase of a special Wagner Morehouse, Inc. draw works that forms the heart of the new rig.

The new rig makes extensive use of the light, strong, corrosion-resistant ALCOA-developed alloy throughout. The substructure is fabricated of aluminum structural members. A fabric mud tank employs an aluminum support frame. The suction tank and suction manifolding in the mud system are aluminum. And aluminum is used for a special shale shaker support and desanding ditch.

The new rig breaks down into 4,000-lb packages for easy helicopter transport. It will be used in hard-to-reach Central Bolivia—in a joint exploration program for Bolivia California Petroleum Co., a subsidiary of the Standard Oil Co. of California, and Compania Petrolera Boliviana Shell, Ltd., one of the Royal Dutch Shell group of companies. Loffland Brothers de Caracas C.A. is the drilling contractor.

Here you see how ALCOA engineers apply over 40 years of petroleum experience to make aluminum the good design habit for the petroleum industry. ALCOA knows aluminum and knows oil and knows how you can put the two together for more profitable operation. Our file of process industries literature will suggest many ways aluminum can serve you. To get it, write ALUMINUM COMPANY OF AMERICA, 873-F Alcoa Building, Pittsburgh 19, Pa. World-wide sales through ALCOA INTERNATIONAL, INC., 230 Park Avenue, New York 17, N.Y.





ALCOA ALUMINUM

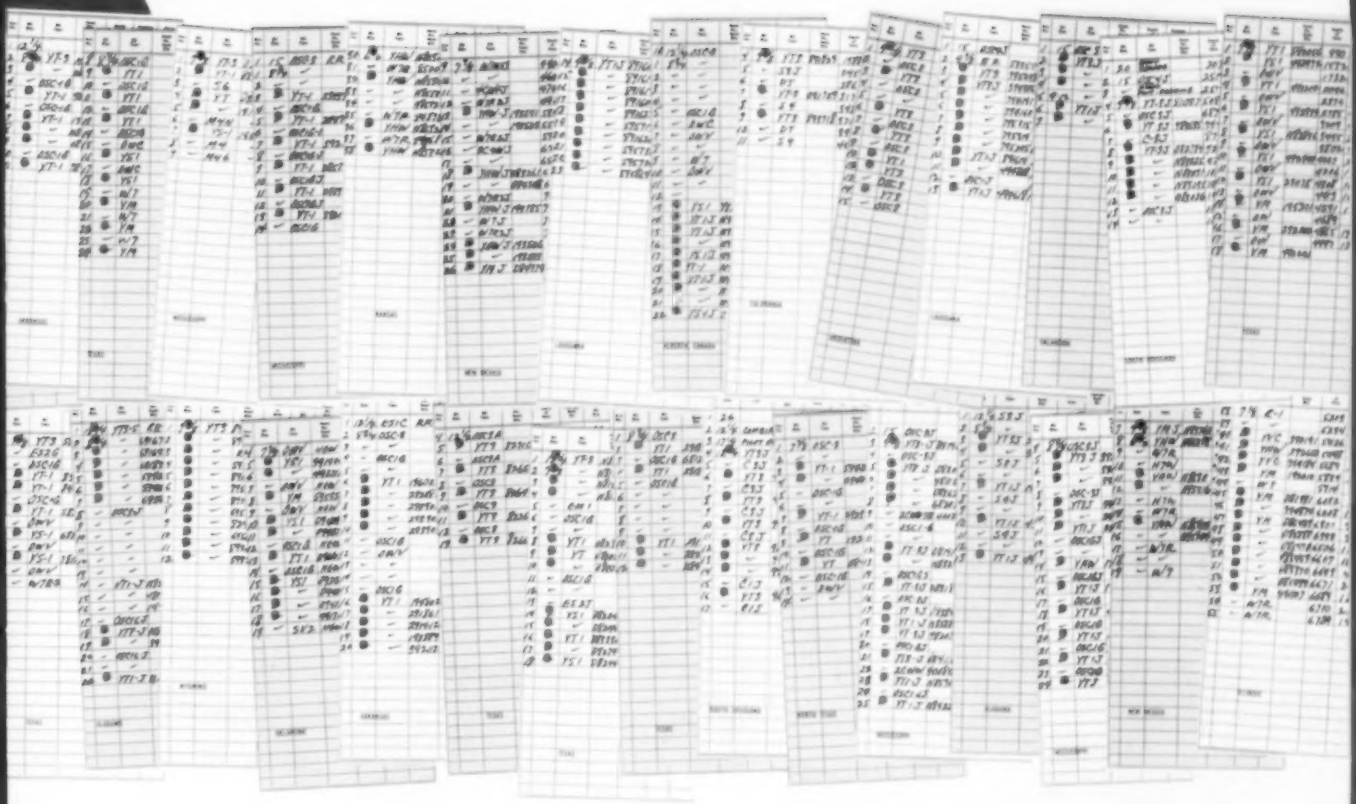
ALUMINUM COMPANY OF AMERICA

MORE

RIGS ARE RUNNING

MORE

REED BITS



and here's why . . . RECORD AFTER RECORD, FROM FIELD AFTER FIELD, PROVES IT!

The bit records shown above are representative of the competitive job Reed Y bits are doing all over the world.

Most people are using Reed Y bits today because they know that when they put a Reed Y bit in the hole it will do the job and do it right.

The performance of Reed Y bits in the past year has been so good that we have not, in some cases, been able to supply the quantities that have been demanded by our customers. To remedy this, we have expanded our production facilities and are now in a better position to supply your needs.

An expanded research and development program has enabled us to provide all the most popular sizes and types for immediate delivery and we are adding additional sizes and types on a regular, continuing basis. Each new size and/or type requires many hundreds of hours of research, engineering, and testing. When we release a bit to the field for sale, you can rest assured that it will dig with the best of them.

Run Reed bits on your next well—you'll be pleased with the results.

REED ROLLER BIT COMPANY *Houston 1, Texas* EXPORT OFFICE: 1011 INTERNATIONAL BLDG., NEW YORK 20, N.Y.
GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS

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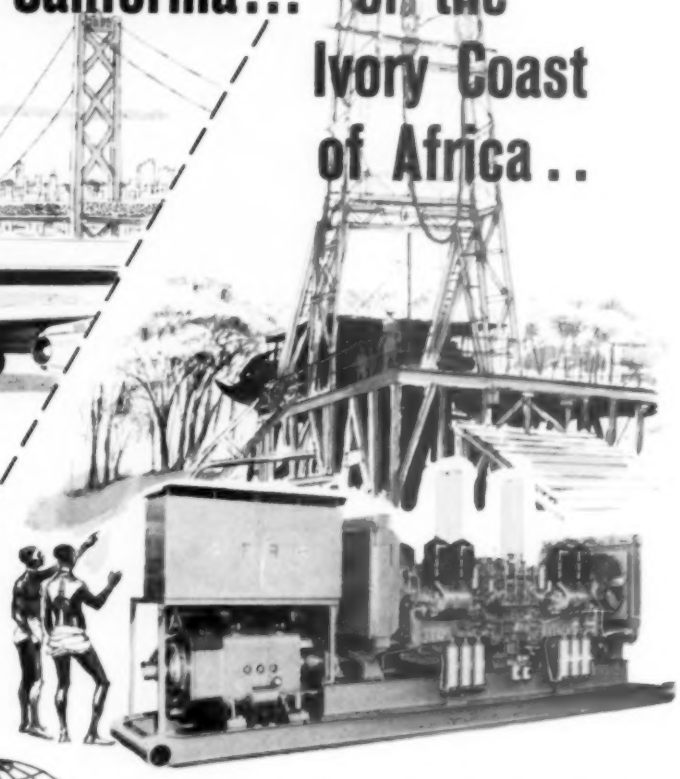
In San Francisco, California... or the Ivory Coast of Africa..

Stewart & Stevenson Self-Propelled, diesel powered, Airport Utility Unit providing electric power for a giant Boeing 707 Jet Liner.



Stewart & Stevenson RIGELECTRIC engine electric power unit supplying power for drilling operations on Laughlin Porter's oil drilling rig in Africa.

STEWART & STEVENSON

When it comes to diesel or gas engine power, Stewart & Stevenson experience and "know-how" have no boundaries.

Here again are two diesel engine power applications . . . in direct contrast and in opposite parts of the world . . . with one important characteristic in common: both were designed and built by Stewart & Stevenson Services, the world's largest distributor of diesel engines. Both power applications are serving vital industries where thousands of dollars and valuable contracts are totally dependent on the reliability and performance of this engine driven equipment.

When you need power . . . for any application in any part of the world . . . Stewart & Stevenson's experience, service organization and engineering will guarantee dependable performance. We will be glad to study your power needs and submit recommendations. Please write for additional information.

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equipment, the injection can be fast, simple, and completely safe.

Atlantic began working on the ammonia injection method in the early 1950s after encountering corrosion-caused casing leaks in 1950 in Wasson and Seminole fields. Much of the original work was done by Rado Loncarcic, who is still associated with the project.

Results of the 15-well pilot program in Wasson, coupled with lab studies, led to the start of full-scale operation in 1956.

'Cheap' Mud Can Cost You More

It is "impossible" to plan the most efficient mud program for a deep well without knowing the casing and drilling program, according to James F. Youngblood, of Magnet Cove Barium Corp., one of the Dresser Industries.

The Magcobar engineer told the Houston chapter of the API Division of Production last week that the type of mud used, and its properties, should be carefully considered, especially in drilling high-pressure deep holes.

One case history involving an 18,000-ft. hole illustrates the danger of taking mud for granted.

Youngblood said the hole size and casing size "apparently" was determined without too much regard for the mud and hydraulics.

"On reaching the 16,000-ft. level with an 18-lb.-per-gal. mud, drilling a small hole through small casing with small drillpipe," he reported, "the maximum pump pressure obtainable was 2,000 psi.

"The volume of mud through the bit was extremely low, and the annular velocity was about 30 ft. per minute.

"Because of the slow circulation rate, bits were dull before the mud made a complete circulation. And penetration rate was low, compared with other wells in the area.

"To keep the mud viscosity and yield at a minimum, the mud was heavily treated with a chemical, and was over-centrifuged in an attempt to improve flow characteristics."

The wrong mud for this deep, high-pressure hole was chosen because emphasis was put on first cost.

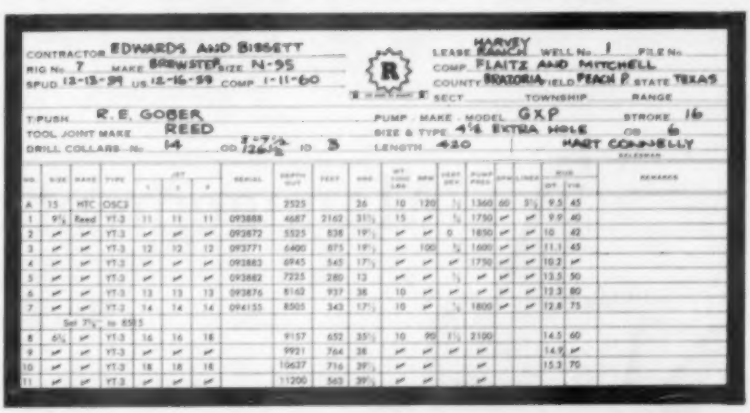
Youngblood said that better mud is available, which has proved to be better suited for drilling to greater depths, at higher bottomhole temperatures, at higher mud weights, and at less over-all cost.

HERE'S WHY:

Mr. E. K. Bissett, Partner and Drilling Superintendent in the firm of Edwards and Bissett, Inc., (operating rigs in the upper Texas Gulf Coast), is running more Reed bits these days. Why? Mr. Bissett says, "I've been using Reed equipment off and on for years now. Within the last year we've pretty well standardized on Reed "Y" bits for our rigs, and we have also bought a string of Reed tool joints and Reed drill collars. We use this equipment for two main reasons—we get more for our money and we always get the service we want and need."

Kenneth Bissett is a man who knows the drilling business. He buys the tools and equipment that will give him the best performance per dollar spent . . . he buys Reed. We are proud to call him one of our valued customers. That's why we have our research and engineering people working around the clock to stay ahead of the crowd designing and manufacturing the rotary tools that will do the best job today and tomorrow.

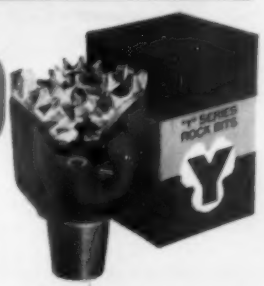
Ask the Reed man near you about Reed's latest innovations—the Comet bit, Flush-Flo, INARCLAD-60. He has information of great value to you.


CONTRACTOR EDWARDS AND BISSETT — LEASE HARVEY RANCH — WELL No. 1 — FILE No.
RIG No. 7 — MAKE BROWNSTEP — SIZE N-95 — COMP. FLAITZ AND MITCHELL
SPUD 12-13-59 — DR 12-16-59 — COMP 1-11-60 — COUNTY STARR — FIELD PEACH P — STATE TEXAS
SECT. — TOWNSHIP — RANGE

T-PUSH R. E. GOBER — PUMP MAKE — MODEL GXP — STROKE 16
TOOL JOINT MAKE REED — SIZE & TYPE 4½ EXTRA HOLE — OD 6
DRILL COLLARS No. 14 — OD 7-7/8 — ID 3 — LENGTH 420 — HART CONNELLY

No.	Size	Make	Type	Jet			Serial	Depth Out	Feet	Hrs	WOB (1000 Lbs)	RPM	Jet Vel.	Pump Press	SPM	Liner	Mud Wt	Vis	Remarks
A	15	HTC	OSC3					2525		26	10	120	½	1360	60	5½	9.5	45	
1	9⅞	Reed	YT-3	11	11	11	093888	4687	2162	31½	15	"	½	1750	"	"	9.9	40	
2	"	"	YT-3	"	"	"	093872	5525	838	19½	"	"	0	1850	"	"	10	42	
3	"	"	YT-3	12	12	12	093771	6400	875	19½	"	100	½	1600	"	"	11.1	45	
4	"	"	YT-3	"	"	"	093883	6945	545	17½	"	"	"	1750	"	"	10.2	"	
5	"	"	YT-3	"	"	"	093882	7235	280	13	"	"	½	"	"	"	13.5	50	
6	"	"	YT-3	13	13	13	093876	8142	937	38	10	"	"	"	"	"	12.3	80	
7	"	"	YT-3	14	14	14	094155	8505	343	17½	10	"	½	1800	"	"	12.8	75	
		Set 7⅞" @ 8505																	
8	6½	"	YT-3	16	16	16		9157	652	35½	10	90	1½	2100			14.5	60	
9	"	"	YT-3	"	"	"		9921	764	38	"	"	"	"			14.9	"	
10	"	"	YT-3	18	18	18		10637	716	39½	"	"		"			15.3	70	
11	"	"	YT-3	"	"	"		11200	563	39½	"	"		"					

REED



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supervises engineering projects
in 16 states with an

AERO COMMANDER

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Barnard and Burk, Inc. multiplies executive time with Aero Commander

What does a company of consulting engineers do when they're losing valuable management and engineering time in travel? Barnard and Burk, Inc., Baton Rouge, La., solved the problem in May, 1957, with the purchase of an Aero Commander.

"At least half the cities we must reach quickly," states C. C. Barnard, Board Chairman, "are not served by commercial airlines." He explains that a typical day's use of the plane transports six men to as many jobs, saving at least half a day for each.

EXECUTIVE TIME FULLY USED

C. C. Barnard

Mr. Barnard now puts in a full day at his office after which the Aero Commander will deliver him to New Orleans where he can board a direct flight to New York without losing a single hour of productive time.

AERO COMMANDER DEPENDABLE

President J. S. Burk states that his company has maintained 99 per cent of its projected schedules. "The dependability of our Aero Commander," he says, "is outstanding."

J. S. Burk

Leon Purdin, Chief Pilot, says the plane is used over 500 hours each year. During one year's operation the Aero Commander averaged, ground to ground, 182 mph with an average per trip of 54 minutes. Fifteen per cent of flights were at night, 18 per cent were instrument flights.

IMPORTANT NEW BUSINESS ASSET

"The Aero Commander helped us to obtain a military contract for 17 bases for the 2nd Air Force," says Burk. "Without it we couldn't have undertaken nor supervised work on such a far-flung project."

ASK FOR A FREE TIME-TRAVEL ANALYSIS FOR YOUR COMPANY

What's New / IN PRODUCTION

California's Lands Commission expects to decide on July 28 whether to offer more offshore lands for leasing and the basis for the bidding.

The commission heard oil company presentations May 31 and June 1 urging it to offer lands offshore from Santa Barbara County between Point Conception and Goleta Point. This same area contains the five offshore parcels leased in 1958.

Five companies proposed that the lands be offered on a royalty plus cash-bonus basis. Richfield Oil Corp. (L.A.) recommended a flat royalty rate of not less than 16⅔%.

•

Mobil Oil Co. will drill a 13,000-ft. wildcat in the Florida Panhandle, 10 mi. south of the Alabama state line.

The test, in Santa Rosa county, is slated to get under way in mid-June. Mobil will attempt to test the Hosston formation at the 13,000-ft. depth. Closest known oil production from this same zone is roughly 100 mi. northwest, in Mississippi. The wildcat will be 50 mi. southeast of the Citronelle oil pool, and 15 mi. south of the Pollard pool, both in Alabama and producing from other than the Hosston formation.

Mobil says the decision to drill came after nearly two years of geophysical and geological studies covering 235,000 acres in southern Alabama and Western Florida.

•

Coast Exploration Co. has purchased "substantially all" of the assets of Midwestern Oil & Gas Corp.

This includes all of Midwestern's production and leasehold interests in California and in other states in the Rocky Mountain area, plus an interest in the Bradley lease at Santa Maria, consisting of 320 acres on which four wells are producing 300 b/d. A fifth well is now under way.

•

California Production Service, Long Beach, has acquired Campbell Shell Production Service, Bakersfield.

In addition, the company acquired two $100,000 Hopper production rigs from Republic Supply Co., of California.

It's part of California Production Service's expansion operations to include San Joaquin Valley oil fields. C. T. Stonecipher, former division superintendent at Castaic, will head the Bakersfield division.

•

Oilmen are protesting an Army proposal to close a 30-mi. strip of California coast during missile firings.

The area lies between Point Sal and Point Conception. A spokesman for the Western Oil & Gas Assn. said that while the strip wouldn't be withdrawn technically, the effect on oil exploration would be the same.

The Army Corps of Engineers wants to designate the area as a danger zone so as to restrict civilian movements in the missile range.

•

Leasing News

North Dakota's first lease sale since minimum bonus prices were increased to $1 per acre in major oil producing areas of the western half of the state will be held July 6 and 7.

The sale, which will include 17,000 mineral acres in 12 counties, will be the third smallest since the leasing of state land began, and will follow two of the largest sales in the state's history.

The State Land Dept. will offer five tracts covering 12,675 acres in ten counties. The Bank of North Dakota will list 53 tracts with a total of 4,304 acres in 11 counties.

Montana State Land Board's May 31 auction brought $38,580 for leases on 20,382 acres.

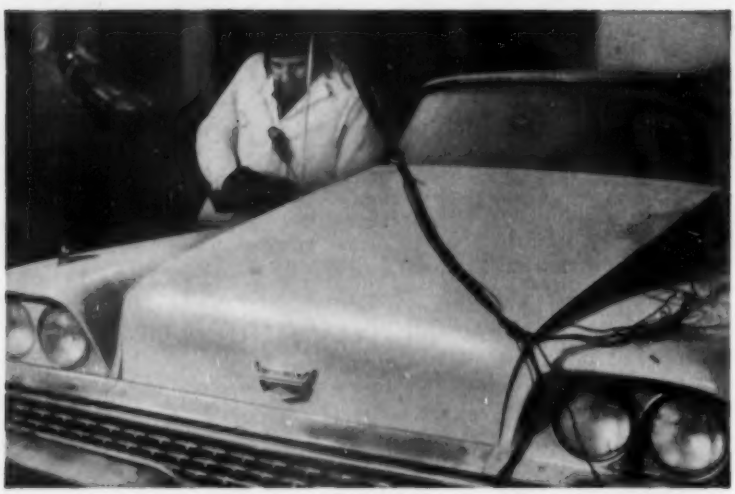
A high bid of $8.75 an acre was made by both the Humble division of Humble Oil & Refining Co. and the State Highway Commission. Humble was the largest over-all lease buyer, with bids ranging from $.75 to $8.75 an acre.

The State Land Board plans two more sales in August and September.

A lease sale on 47,419 acres of South Dakota state land will be held in Pierre, June 22.

The offering includes 146 tracts in

NEW ANTI-PARADYNE®



PARADYNE 41 PASSES STIFF ANTI-STALLING TESTS

The photograph shows a car undergoing stalling tests in a controlled temperature room. Paradyne 41 inhibited gasoline gave outstanding performance under the most critical conditions.

provides maximum protection against engine stalling

Paradyne 41 prevents troublesome carburetor icing . . . the most common cause of stalling in the fall, winter and spring seasons. A combination of phosphorus-containing compounds, Paradyne 41 forms a protective water- and ice-repellent film on metal surfaces . . . preventing agglomeration of ice crystals on carburetor surfaces.

ALSO PREVENTS RUST

Test panels immersed in Paradyne 41 inhibited gasoline showed no rust after 40 days.

SAVES MONEY ON PHOSPHORUS

At concentrations normally used for anti-icing, Paradyne 41 provides an appreciable portion of the phosphorus required to modify combustion deposits...thus reducing the amount of additional phosphorus additive required to prevent misfiring and surface ignition.

PERFORMANCE PROVEN BY THOROUGH FIELD TESTING

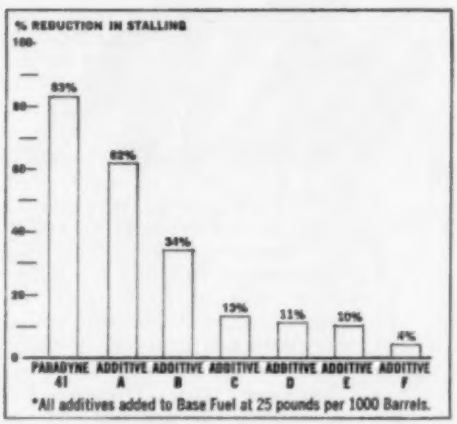
Extensive field tests, closely controlled test car studies and large-scale distribution studies . . . substantiate service qualities shown by Paradyne 41 in laboratory test engines.

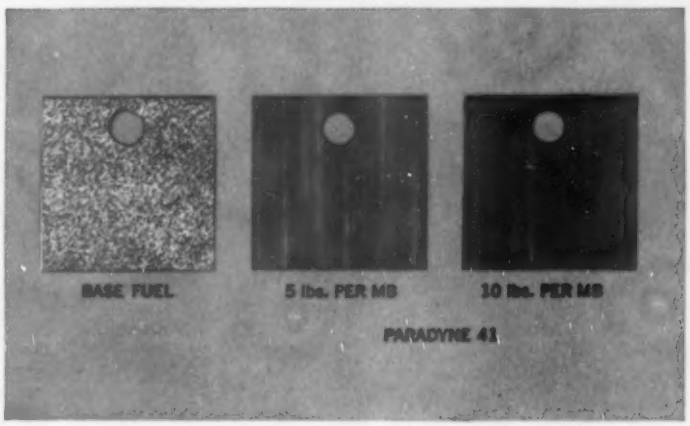
EASY STORAGE AND HANDLING

May be handled as a petroleum product . . . with normal precautions used in handling phosphorus additives.

ENJAY
ADDITIVES

STALL 41 GASOLINE ADDITIVE!





PARADYNE 41 PROVEN SUPERIOR

The bar chart shows the anti-stalling effect of Paradyne 41 and six other leading additives when compared with the additive-free gasoline. Under test conditions, additive-free gasoline allowed 22 out of 25 possible stalls. Paradyne 41 reduced the stalls to less than four out of 25 – a reduction of over 83%. Paradyne 41 excels in anti-icing effectiveness even under the most critical temperature and humidity weather conditions.

CALL UPON ENJAY FOR PRESCRIPTION-BALANCED ADDITIVES THAT

... meet your exacting specifications
... help you market your products successfully

The new Paradyne 41 Technical Service Bulletin, and information about improving your product's performance with a Prescription-Balanced Paramins Package, are yours for the asking.

TEST PANELS SHOW PARADYNE 41 ANTI-RUST EFFECTIVENESS

Rusted panel at left was immersed in gasoline over synthetic sea water for three days. The other panels were subjected to same conditions for 40 days, but gasoline was inhibited by small concentrations of Paradyne 41. Note that these panels are rust free.

ENJAY SERVES YOU

... with a *complete* line of petrochemicals to improve fuels and lubes • with a larger staff devoted exclusively to additives research and manufacture ... a staff available to help you meet your special additives requirements • with quality controls at every production step to assure that each order meets specifications • with expedited deliveries from Enjay product centers across the country.

Want more information? Contact the nearest Enjay office: (Home Office) 15 West 51st Street, New York 19, N.Y. (Other Offices) Akron • Boston • Charlotte • Chicago • Detroit • Houston • Los Angeles • New Orleans • Tulsa • Toronto

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY
ADDITIVES

Corson, Butte, Dewey, Ziebach, Stanley, Perkins, Meade, Fall River, and Harding counties. Nearly 7,120 acres are in Harding county, site of South Dakota's only significant production.

Alberta has scheduled a sale of oil and gas leases on 38,844 acres for July 26. It covers acreage in Alhambra, Gilby, Pembina, Swan Hills, Virginia Hills, and other areas.

The government will also offer Provincial Parcel No. 87 in the Big Bend provincial reserve, totaling 52,440 acres.

Other reservation sales have been scheduled as follows: June 28, 477,754 acres, chiefly in far-northern Alberta, in areas No. 1,728-35; July 5, 246,681 acres, in southern parts of the province, areas No. 1,736-42.

A complete 13-tract offering of 6,337 acres was taken at a sale of leases on Nebraska state land June 3. Only three tracts—all in Wheeler County—went for the minimum acceptable bonus of 50¢ an acre.

A full section of Banner County acreage commanded the top bonus of the sale—$19.75 an acre. F. W. Baumgartner, Denver, was the successful bidder. The tract lies immediately west of Kanman field.

•

Drilling Highlights

Texas Panhandle—Gulf Oil Corp. No. 1 H. A. Bowers, section 255, block C, G&MMB&A survey, Hemphill County, was completed for 27-million cf/d of gas from open-hole section at 13,576-611 ft. in the Washita Creek (Pennsylvanian). The discovery is more than 25 mi. northeast of Red Deer Creek field.

Alberta—Texas Gulf Sulphur Co. et al No. 6-22 Wildhorse Creek, lsd 6-22-31-10w5, flowed 8¼-million cf/d of gas through ½-in. choke and perforations at 7,468-588 ft. in the Mississippian. The hole is being drilled to original target depth of 9,500 ft. The prospect is 6 mi. west of Shell Oil Co. No. 6-22 Burnt Timber discovery.

West Texas—Atlantic Refining Co. No. 1 J. C. Kelly, section 8, block 51, T-10, T&P survey, Pecos County, flowed gas at the rate of 4.7-million cf/d through 24/64-in. choke and perforations at 16,550-65 ft., 16,580-610 ft., and 16,650-80 ft. in the Montoya (upper Ordovician). Nearest deep production is 20 mi. northeast.

Southwest Texas—Tennessee Gas Transmission Co. and Jade Oil Co. No. 3 W. O. Drier Unit, Doehrman gas field, DeWitt County, was dually completed for approximately 1-million cf/d of gas through 8/64-in. choke and perforations at 8,094-104 ft. in the Mac Hank sand, and for 245 b/d of oil (based on 8-hour flow) through 11/64-in. choke and perforations at 8,172-78 ft. in the First Massive Wilcox sand. There is no other oil production in the area.

East Texas—H. L. Gist, Pan American Petroleum, and Sunray Mid-Continent No. 1 Grant Unit, Lavinia Moore survey, Cass County, recovered 1,650 ft. of mud cut heavily with condensate and 60 ft. of condensate on 35 minute drillstem test at 11,123-56 ft. in the Smackover (Jurassic). The prospect is 3 mi. northeast of East Linden field, which produces from the Cotton Valley (Jurassic).

North Louisiana—Jett Drilling Co., Inc. No. S-6 Urania Lumber Co., section 31-11n-2e, La Salle Parish, was completed for 4.9-million cf/d of gas on open flow through perforations at 2,607-26 ft. in the Wilcox. The well is 2 mi. north of Tullos-Urania field.

These Bonds having been sold, this advertisement appears as a matter of record only.

$13,126,000

Trans-Canada Pipe Lines Limited

$8,260,000

First Mortgage Pipe Line Bonds, United States Series, 6¼%

Due October 1, 1978

$4,866,000

First Mortgage Pipe Line Bonds, Canadian Series, 6¾%

Due October 1, 1978

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Indonesia's Oil Policy May Bar New Concessions

TOKYO—Indonesia is "unlikely" to grant further oil concessions, according to the president of Permina, Indonesia's government oil company.

In an interview here in Tokyo, Col. Ibnu Sutowo expressed the opinion that this would apply both to the new companies and to those already operating in Indonesia—Royal Dutch Shell, Caltex, and Standard-Vacuum.

An exclusive interview by Petroleum Week's Tokyo Bureau

This semiofficial statement was the first recent hint of the trend that may be expected in Indonesia's oil policy.

"Concessions of the old kind are out," he asserted. But he conceded that it isn't clear yet just what terms Indonesia will accept in the future.

The reason, Sutowo said, is that Indonesia has yet to enact a long-pending basic petroleum law.

Sutowo indicated that he had favored—and had expected passage of—a draft law that was written and presented to the Indonesian Parliament last year, before the parliamentary system was dissolved. The draft, now buried, would have provided for limited grants of new rights to the present operators, plus possible grants to newcomers in mixed enterprises with the government.

"Our government's policy is to try as much as possible for credits—rather than direct new private investments—in every sector of our economy," Sutowo said.

Permina itself recently lined up such a credit with the Japanese for its own oil operations.

Sutowo, just back from a fact-finding tour in Europe, was in Tokyo for formal signing of the pact, under which Permina will get a $52-million Japanese credit in technology and equipment (PW—May13'60,p44).

It will be used to help develop the former Royal Dutch Shell properties Permina now holds, in the Pangkalan Susu area of northeastern Sumatra. Permina is to repay the loan through deliveries to the Japanese of the extra crude developed.

Sutowo acknowledged that it might not be possible to get more such credits for oil operations, even though Permina finally succeeded in getting Japanese cooperation on that basis. Permina had turned down earlier Japanese proposals for investment in a new jointly owned operating company.

Indonesia has asked Rumania for technical assistance on oil operations, Sutowo said. He expressed belief that technicians would be made available by the Bucharest government.

If loans and credits are not available, Indonesian government policy might favor joint investments with foreign oil companies on a 50-50 partnership basis, Sutowo said.

But Permina itself, he added, would not accept such partnerships "under any conditions." The company is the only present Indonesian-owned oil operation.

Permina itself, its president disclosed, has plans for other areas besides the one that is now to be developed with Japanese aid.

Sutowo indicated these areas might include concessions granted by the pre-World War II Dutch colonial government that the Indonesian government has now declared null and void because they were not being operated. He said they were in Sumatra.

Permina, now only a producing company, aims at completely integrated operations, including refining and marketing, according to Sutowo.

Its first aim, he said, is to boost its present 12,000 b/d production "as much as possible, as fast as possible." The target for this year, he said, is about 20,000 b/d.

Col. Ibnu Sutowo

He declined, however, to comment on the productive capacity of the Pangkalan Susu area. Both Dutch and American oil men have said that Japanese estimates are exaggerated. There have been reports in Toyko, however, that new reserves were found by the Japanese during their four-year occupation during World War II.

Permina will continue its contract to market its present output through Refining Associates, of Los Angeles, which has been acting as broker for sale of the crude to Maruzen Oil, Japanese independent.

The original $2-million loan extended to Permina for equipment by the Los Angeles firm has been largely repaid, Sutowo said. But the contract has another three years to run.

Refinery Plans Still Piling Up

U.S. oil companies are piling up bids to build refineries in Central America as outlets for Venezuelan crude. At least nine have been proposed so far.

At present, there isn't a single refinery in this stretch of territory that links North and South America, though one small unit is now under construction in Guatemala.

The market, fairly limited now, is still supplied largely by international majors from other Caribbean refining areas.

But the outlook is changing fast as newcomers make a bid for a toehold (PW—Mar.11'60,p36).

Delhi-Taylor Oil Corp., of Dallas, is putting together the latest of the new refining plans—for Guatemala.

A new affiliate called Petrolera Delhi Guatemala S.A. has officially applied for the right to build a 10,000 b/d plant, with 30% Guatemalan and 70% foreign capital.

The $8.8-million unit would be built at Matias ded Galvez port.

Delhi Guatemala does not propose to market under its own name, according to Antonio Iglesias de la Torre, local manager of the firm.

Plans being worked out reportedly involve processing deals under which

Rectorheads are *"Sealed With Steel"*

Today's modern jet planes that streak across oceans and continents at supersonic speeds, are engineered to withstand tremendous heat, violent stress and extreme temperature variants.

The same welding principle that insures strength and durability in the Hustler by Convair, is utilized in Rector's "Sealed With Steel" casing heads to insure trouble-free completions for all types of oil and gas wells. Rector casing heads are built to withstand fire, shock and highest wellhead pressures. The maintenance-free welded seal, pioneered by Rector has proven its soundness and complete efficiency of application and service in over 100,000 trouble-free field installations.

Whatever your requirements, see your Rector representative or consult your favorite supply store today.

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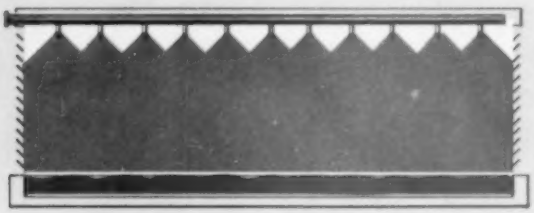
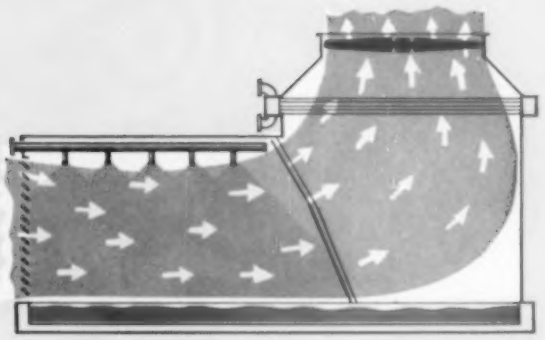
HUDSON SOLO-AIRE UNITS

WATER ——



HUDSON COOLING TOWERS

or a combination of AIR AND WATER ——



HUDSON COMBIN-AIRE UNITS

The answer is found only through comparisons of economics of air, water or a combination of the two for cooling each process stream, and incorporating the results in one integrated cooling system. Factors to be considered include desired effluent temperature of each process stream; summer and winter ambient dry and wet bulb temperatures; availability and quality of water; possibility of public water pollution; space available; and first cost, maintenance cost, and operating cost of equipment.

HUDSON is unique in supplying water cooling towers, Solo-aire units, and Combin-aire units to comprise integrated cooling systems utilizing air and water in economic ratios. With the collaboration of owners' engineers, HUDSON has designed integrated cooling systems for a wide range of process and climatic conditions. Hundreds of HUDSON installations are operating in the United States, Ireland, England, France, Spain, Norway, Saudi Arabia, Pakistan, the Philippines, Mexico, Chile, Peru, Venezuela, and Canada. HUDSON experience, available without obligation in integrating the cooling system with process design, will be most valuable to plant owners if utilized during planning stages.

In early design stages of future projects let HUDSON collaborate with your engineers in selecting the integrated cooling system which best balances capital investment and operating cost for the specific process, climatic and water conditions.

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the company would buy crude from producers in Venezuela and resell the products to them for distribution.

The plant is the third proposed for Guatemala alone, where oil demand is just under 10,000 b/d.

The first is the 3,500 b/d unit already under construction as a joint venture of Shell and Breaux Bridge Refining, of Louisiana.

The second is the 12,000 b/d plant which only recently was approved for construction by a new company in which Phillips Petroleum has a 38% interest (PW—Jun.10'60,p39).

El Salvador with 6,000 b/d demand —also has drawn three refinery proposals. All are officially approved, but only one is definitely set for construction so far.

This is a 10,000 b/d plant that Shell is ready to go ahead with at Acajutla, where it has purchased land.

Esso also has had an official O.K. to build a refinery at Acajutla, but has not finalized plans for it yet.

The third proposal was put in last year by an unidentified group with U.S., British, and local capital.

The Central American list so far also includes one plant for Nicaragua and two for Panama.

In Nicaragua, Esso has proposed a 10,000 b/d plant.

In Panama, a new company owned jointly by Continental Oil and National Bulk Carriers, Inc., will complete a $30-million plant by early 1962 on Payardi Island, near the Caribbean entrance to the Panama Canal. A letter of intent has been signed with Bechtel Corp. to build the plant, whose size is still undisclosed. Also in Panama, another major refinery is being "actively considered" by Ultramar, Ltd., of London, which acquired Panama refining rights through its recent outright purchase of Golden Eagle Refining Co., of Los Angeles.

The scramble to find outlets for the crude output of the new producers in Venezuela first touched off the race to get into refining for even the very limited markets of Central America.

It gained momentum as majors came up with competitive plans, to protect their established markets.

It has grown to still larger proportions since the outlines of a Central American Common Market have been laid down. Most of the proposed refineries, while still small, are planned to provide a surplus for export.

Aramco Challenges Hendryx's Thesis

Aramco last week contested the thesis promoted by an American advisor to Saudi Arabia that sovereign nations have the legal right to break their oil concession agreements unilaterally.

The presentation was made by the company's general counsel, George W. Ray, Jr., in a talk in Dallas before the Institute on Private Investments Abroad, sponsored by the Southwestern Legal Foundation. His paper was entitled, "The Law Governing Contracts Between States & Foreign Nationals."

"Throughout the history of their relations, Saudi Arabia and Aramco have seen eye to eye on the sanctity of contracts," Aramco's counsel said.

He expressed confidence that the government of Saudi Arabia—where Aramco is the chief concessionnaire company—would agree with his views.

"There is no basis in law or morals," he said, for the claim advanced by Frank Hendryx, an American legal advisor to Saudi Arabia's oil directorate.

Hendryx had presented his view last year at the First Arab Petroleum Congress in Cairo. In a widely publicized paper, he asserted that a sovereign state may legally alter or nullify part or all of an existing concession agreement.

Most Arabs participating in the Congress meeting denounced Hendryx's thesis.

In fact, the Aramco counsel said, "no system of law gives one party—even though a State—the right at its will to repudiate its contract or alter it in any way whenever it appears to only one party (the State itself) that it will be in the public interest to do so."

An oil development agreement between a sovereign state and foreign nationals is "international by nature," Ray said.

The reason is that its performance requires action in more than one state, and its enforcement may involve two states.

The agreement establishes rights for each party and imposes obligations upon them within their respective spheres, Ray said.

"It is as sufficient within itself as the parties can make it," he added. "There is seldom any necessity for looking beyond its terms to ascertain the rights and obligations of the parties."

The oil agreement, further, has "constitutional character," the Aramco counsel said, due to its international nature, its resulting economic progress, and the scope of its provisions.

In resolving disputes, he said, it becomes necessary to separate legal principles from "devices" designed to furnish escapes from principle.

"Taking a good look at history," he said, provides the answers to frequently conflicting claims on which are principles, and which are devices.

"Principles have a way of surviving after being challenged—and powerfully challenged—by devices.

He cited two basic principles: (1) The contract is the law of the two parties; and (2) the contract is binding.

These, Ray said, have "earned their places among the legal concepts which deserve our permanent respect."

Both principles were reaffirmed in the international arbitration between Saudi Arabia and Aramco, Ray noted—referring to the "Onassis dispute" (PW—Sep.12'58,p14).

"This award is entitled to have, and will have, great weight," he said. "The issues were argued exhaustively by eminent counsel before a tribunal composed of men of outstanding competence and integrity. The findings speak for themselves and are not subject to successful challenge."

Claims of "sovereign immunity" sometimes made by states to prevent decisions against them "compound the confusion" respecting sovereignty, Ray said.

But there are four usual results when the "proper concept" of sovereignty is considered in the light of the nature and character of an international contract: (1) Sanctity of the state's contract with a party that performs its obligations in good faith is confirmed. (2) The state is found to be under a dual obligation—to perform its contractual obligations, and to protect the other party's rights. (3) The contract is established as the ad hoc law, governing "in substantial part" the relationships of the parties to each other. (4) Acquired rights are confirmed.

What's New / AROUND THE WORLD

IRAQ—Qasim Ahmad Abbas has been named Acting Director General of Oil Affairs, replacing Abdul Aziz Wattari. The shift follows a reorganization that makes the Directorate General part of the Oil Ministry, removing it from control of the Petroleum Commission.

•

SPAIN—General American Oil Co. of Texas has applied for a 96,000-acre tract in mainland Spain.

If the state-owned INI joins the venture, as expected, it will be INI's first step outside of its reserve area. General American, along with other American firms, is already associated with INI through Valdebro.

•

TUNISIA—The Italian government's ENI has snapped up exploration and refining rights in joint venture with the Tunisian government.

The reports said ENI had agreed to build a refinery at La Skhirra, Tunisian terminal for the pipeline from Edjele field, Algeria. Half of the output would be used locally, and the other half exported.

It was also reported ENI has been granted marketing rights in Tunisia.

•

GUATEMALA—Delhi-Taylor Oil Corp. has applied for approval to take a farmout from Texaco on Rights 6 and 7 in the northwest corner of Peten. Texaco holds approximately 45% interest in the tracts, which total over 1.3-million acres. Sun, Pure, Tidewater, and Atlantic hold the rest.

•

GREECE—Hunt International has been granted an exploration permit on 1,544 sq. mi. in the Salonica-Katerini area, subject to approval of the Greek parliament.

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BOLIVIA—The first U.S. government loan ever extended to a foreign government oil company will go to Bolivia's YPFB, which—unlike those in Mexico and Brazil—is not a monopoly. YPFB will get a Point Four industrial credit of $2.7-million for equipment purchases in the U.S., plus $25,000 in financing for a study of its operations and prospects, to be made by DeGolyer & McNaughton.

•

PORTUGUESE TIMOR—Timor Oil, Ltd., is preparing to drill a third wildcat in the Suai-Matai area at the western end of this territory.

The Australian firm is associated with Tradewinds Exploration, Inc., and Sunset International Petroleum Corp., American independents.

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UNITED KINGDOM—British oil consumption jumped 17.8% in the first quarter of 1960 over the same period last year. Rapidly rising fuel oil use boosted the total to 11,218,835 tons.

•

The Royal Dutch Shell group's crude and product sales rose nearly 5% to 2,813,000 bbl. in the first quarter, from 2,668,000 bbl. in the same period of 1959. Net income was up $6-million to $117-million, due largely to a $28-million drop in income taxes.

•

ARGENTINA—Foreign oil companies will be granted new contracts in Argentina in return for "advance royalty payments," Argentina's Economy Minister announced last week.

Reports that newcomers to Argentina may be involved, as well as those already established there, such as Esso and Shell, are still without official confirmation (PW—Jun.3'60,p54).

•

ARGENTINA—Steadily climbing oil output averaged a record 151,300 b/d in May—up nearly 44% from May, 1959, and up 7% from April, the government announced.

•

SAUDI ARABIA—LPG will be available for export in refrigerated form early next year, for the first time in the Middle East.

Arabian American Oil Co. is now near the half-way mark on a $6.1-million project at Ras Tanura for refrigerating and storing 4,000 b/d of liquefied propane and butane. Offtakers will be able to lift either one, or a mixture of both in any proportion desired.

•

TANGANYIKA—Italy's state-owned ENI group is pushing its African marketing spread into Tanganyika, where a new Kenya-based subsidiary plans to sell gasoline. It also proposes to build its own gasoline stations and bulk storage plants.

•

ALGERIA—Caltex and its French partners will invest $11.1-million in exploration of a new 7,660-sq. mi. Sahara permit during the next five years. Caltex holds a 40% interest in the Zemoul-el-Akkar tract, southeast of Hassi Messaoud field. RAP, the operator and Petropar each hold 30%.

•

MEXICO—U.S. firms will build most of the 28 petrochemical plants Pemex announced it will complete within the next two years.*

The roster includes Arthur G. McKee & Co. (seven plants), Lummus Co. (six), Phillips Petroleum and Fluor Corp., plus Canadian Polymer Corp. and Simon Carves Ltd., a British firm.

•

LIBYA—Iraq's former Oil Minister, Nadim Pachachi, will serve Libya and Tunisia as special oil advisor. Pachachi was a member of the Nuri Said government in Iraq, which was overthrown in 1958.

Shell Stays in Oman

OMAN—The U.S., British, and French partners have pulled out of the Oman concession held by an Iraq Petroleum Co. affiliate in southeastern Arabia. Royal Dutch Shell and Partex (owned by the Gulbenkian interests) are taking over the 71.25% total interests of Jersey Standard, Socony, British Petroleum, and Cie. Francaise des Petroles. Reimbursements are being worked out for exploration to date, including two dry holes and the current third wildcat.

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Common Gear Lube Still A Problem

- **Truck manufacturers disapprove; they feel it's risky.**
- **Refiners supply it because they feel they know how.**
- **Truck users like it because it's so convenient.**

To what extent has it become practicable to use the same lubricant for the transmission and the rear axle of heavy-duty automotive equipment?

The question is still controversial, and arguments are being advanced both pro and con wherever automotive engineers and oil engineers get together. The matter was discussed at the recent meeting of the API Division of Refining, in Detroit. It was discussed again last week at the summer meeting of the Society of Automotive Engineers, in Chicago.

The use of a common lubricant for the manual transmission and the rear axle of trucks brings up problems entirely different from those involved in the "transaxle" lubrication of passenger cars (PW—Jan.22'60,p50).

Equipment manufacturers, in general, do not favor the use of the same lubricant for both applications, because of the great dissimilarity of the requirements.

R. K. Nelson and L. J. Valentine, of the axle division of Eaton Mfg. Co., Cleveland, outlined these differences, at the SAE meeting:

- The load-carrying requirements are different. The tooth load on the rear axle of a truck is substantially higher than the tooth load on the transmission gears. It is 85.8% higher when the truck is in first gear—that is 2% of the time—and 18.8% higher when it is in 4th gear—or 25% of the time. A good "extreme pressure" lubricant is necessary for the rear axle, but such a lubricant does not necessarily work well in the transmission.
- The temperature that the lubricant must withstand is much higher in the transmission than in the rear axle—by as much as 70F at times.
- Transmission lubricants must retain their anticorrosive property at temperatures much higher than in a rear axle.
- Bushings and thrust washers used in rear axles, although very important, are not as critical as those used in transmissions.
- Foaming is more prevalent in transmissions than in rear axles.

In the same vein, R. E. Fletcher, of the mechanical transmission division of Dana Corp., Toledo, Ohio, said, "Based on present lubricants, a common lubricant for the transmission and the rear axle would not constitute the best lubricant for the transmission."

Requirements for a transmission lubricant seem to be closer to those for a good engine oil than to those for a rear axle lubricant, some manufacturers contend.

Fletcher described tests conducted in his company's laboratory on axle lubricants and engine oils, to evaluate their use in transmission. Three SAE 90 hypoid gear lubes, three multipurpose gear lubes complying with military specifications MIL-2105 or 2105-B, and three SAE 50 heavy-duty engine oils were tested.

The tests showed that the engine oils were by far the best of the three groups, especially from a corrosion standpoint. The hypoid lubes, designed for rear axle operation, were the least desirable, said Fletcher.

On the other hand, many operators of heavy-duty equipment have been using a common lubricant for rear axle and transmission since 1947, without harmful effect.

S. R. Calish, of California Research Corp., estimated that in 1960 nearly 5,000 heavy trucks are using a common lubricant in seven western states. He based his estimates on a survey conducted by his own company in 1956. And he pointed out that a far greater number of vehicles would be involved if bus lines, contractors, farmers, and light truck delivery fleets were included.

"The ability to use a common lubricant represents real savings," he said, "to manufacturers, to suppliers, and, most of all, to consumers."

Such a lubricant, however, must possess qualities above those required by the military specifications; these fall far short of the necessary requirements, it is generally felt.

"A new generation of gear lubricants has been developed," said Calish, "and only the best premium-quality multipurpose gear oils are likely to satisfy the need of a common lubricant for both transmission and axles."

In addition, he pointed out, a true multipurpose gear oil must be satisfactory to "mixed" fleets, having both hypoid and worm gears in the rear axles of their trucks.

Most major oil companies are now marketing such a common lubricant.

Lubricating department managers of major oil companies told PETROLEUM WEEK that, while their multipurpose gear lubricants comply with military specification MIL-2105 or 2105-B, they go substantially beyond that specification. They possess all the properties necessary to operate without difficulty in the various types of rear axles as well as in transmissions.

Auto Makers Favor Vinyl Coatings

Vinyl-coated metal, developed a few years ago to combine the strength of metals with the decorative effect of plastics, is being used at a rapidly increasing rate in the automotive industry.

The progress of this unique marriage of metals with plastics of petrochemical origin (the raw material for polyvinyl chloride is acetylene) was reviewed last week by several speakers at the summer meeting of the Society of Automotive Engineers, in Chicago.

Vinyl-coated metals can be produced in several ways. The most generally used method is a laminating process.

P. E. Roggi and C. E. Kiernan, of U.S. Rubber Co. described to the SAE meeting their company's "Marvibond" process, a high-speed, continuous process for the manufacture of metal-vinyl laminate.

The lamination process involves a thorough cleaning and rinsing of the metal, a treatment with phosphate and chromate, a coating with a thermoplastic or preferably a thermosetting adhesive, then the hot application—375F to 425F—under pressure of the sheet of vinyl to the metal.

U.S. Rubber is licensing Marvibond to manufacturers throughout the U.S., Europe, Asia, and Australia. Last year, Roggi said, over 27-million sq. ft. of Marvibond laminate were made.

The total production of vinyl-

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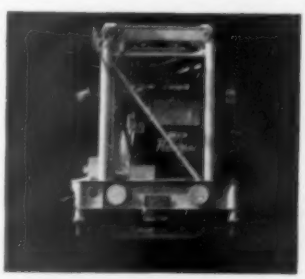

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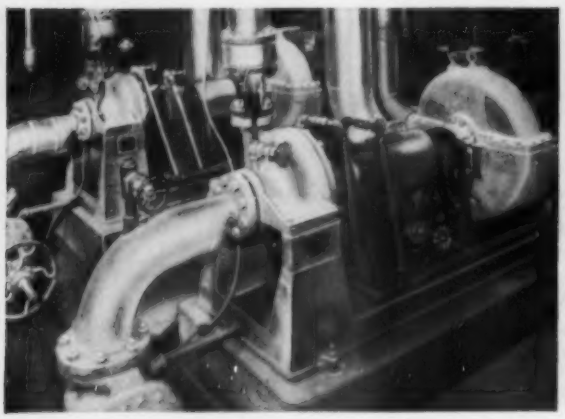
Size 1½" x 2" 2-stage pump handles light hydrocarbon mixture at 900 feet differential head operating at 3,500 rpm.



Size 2" x 3" x 13" pump handles 365 gpm of boiler feed water at 300 psi discharge pressure operating at 4,400 rpm.

Size 4" x 6" x 13" pump handles 780 gpm of hydrocarbonbutane mixture at 470 feet differential head operating at 3,500 rpm.

More than 80 Wilson-Snyder ES Centrifugal Pumps installed by Clark Oil & Refining Corp. in nine years

A satisfied customer comes back many times. Since Clark Oil & Refining Corporation purchased its first Wilson-Snyder Centrifugal Pump for the Blue Island, Illinois, refinery in 1950, it has ordered more than 80 additional pumps to help handle its expanding volume of production. These repeat orders have been the direct result of good pump performance and service.

Type ES Centrifugal Process Pumps are heavy-duty, centerline-supported, single- and two-stage pumps with vertically split cases and are furnished in metals best suited for each type of service. All sizes, from 2 to 250 horsepower, incorporate one basic design. The resulting interchangeability of parts among pump sizes keeps spare parts inventory low. All models may be obtained with either end or top suction arrangement. And each pump is thoroughly tested before shipment to assure rated hydraulic and mechanical performance.

There are 24 sizes of ES and ESC Centrifugal Process Pumps, with capacities up to 2,500 gpm and heads up to 1,000 feet. All sizes can be opened for parts replacement without disturbing case, suction or discharge piping or driver.

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The three-inch unloading line, which can cut unloading time in half, is another Du Pont innovation. So is the siphon starter, which reduces problems caused by siphon breaks in the vacuum system. The Metal-Flex hose requires only one man to attach unloading line to tank car dome, eliminates troublesome leaks and repacking of swing joints, and makes for safer operation.

If you are not familiar with some of the above developments or have other TEL matters you would like to discuss, get in touch with your Du Pont representative soon.

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WORLD-WIDE CONSTRUCTION FOR THE PETROLEUM, PETROCHEMICAL, AND CHEMICAL INDUSTRIES

coated metals were well in excess of 40-million sq. ft.

Vinyl can also be applied to metals in liquid form, in a continuous process.

G. H. Rendel, of U.S. Steel Corp., told SAE of his company's "Plastisol" process. It involves cleaning and adhesive coating similar to U.S. Rubber's, prior to the application of liquid vinyl on the metal. This is accomplished by means of a roller continuously impregnated with the liquid vinyl.

The U.S. Steel unit is designed to process coils of steel plate weighing up to 10,000 lb., with a width up to 52 in. The thickness of the steel can vary from 16- to 32-gauge (63 to 10 mils) and the coated product can be coiled, or cut to length.

A more recent process consists in spraying liquid vinyl on the finished metal object.

W. G. Cryderman, of Kaybar, Inc., Birmingham, Mich., pointed out several advantages of this method:

- In applying vinyl after fabrication, all raw edges, as well as the flat surfaces, are vinyl-coated.
- Welding may be done in the conventional manner to make up the object. As vinyl is strongly dielectric, a very delicate welding process must be used for welding vinyl-coated steel, once it is coated.
- Any damaged part can be salvaged, repaired, and recoated.
- By proper masking, two-tone effects can be created with the spraying process.
- Over-all costs can be substantially reduced.

The same preliminary treatment of the metal applies for all these processes. When the vinyl is sprayed, thicknesses of from 3 to 20 mils can be applied.

Approximately 2-million sq. ft. of sprayed vinyl-coated metal parts, Cryderman said, have been run for automotive applications.

And now polyvinyl fluoride, in coatings as thin as 1 mil, can be laminated on metals, either directly or over the polyvinyl chloride.

This polyvinyl fluoride film, marketed by E. I. du Pont de Nemours & Co. under the name of "Teslar," is said to have the unusual properties of weatherability, toughness, and chemical inertness generally associated with fluorinated organic products. Used alone on metal, it cannot be embossed. But a 1-mil coat of Teslar laminated over a 10-mil coat of PVC can be embossed, and provides a surface much more resistant than the PVC laminate alone, Du Pont says.

HERE'S WHY:

Mr. Clyde Baker, Drilling Superintendent for Reading and Bates, (operating four rigs in Mississippi) is running more Reed "Y" bits these days. Mr. Baker, a user of Reed equipment for many years says, "Sure I'm running more Reed "Y" bits these days. I like the way they perform—and I like the service you get from the Reed people. In good times or in bad they are on the spot with the engineering know-how that keeps the Kelly turning."

Mr. Baker is a man of wide experience in the oil fields. He, and his company, knows the equipment that gives true value year in and year out. It is valued customers like these that keep Reed research and engineering working around the clock to produce and perfect the rotary drilling tools the oil well drilling industry needs.

There is a Reed man near you, (if you are drilling for oil), he has information you *need* on rock bits, tool joints and drill collars. Call him today, it's well worth your time.

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Contractor READING AND BATES — Oil Co. HILL-MYLEAM — Date 12-1 19 59

Lease & Well No. PALMER #1 — Sec. 30 TW. 6N R. 7E — County WAYNE, MISS. — Field or Town WILD CAT

Type Drawworks NAT 110 — Tool Pusher T. M. MEYERS — Spud Date Under Surface 11-23-59

Length Drill Collar 15 OD. 7 ID — Drillers W. F. MERRILL, W. E. HENDERSON, G. O. NEWELL — CASING SIZE 8 5/8 — DEPTH 2030 — DATE 11-27

Tool Joints 4½ F.H. — Salesman BW — Dist. 6X

No. 1 Pump C-1000 Engine Power — Total Depth and Date 3-9-60 13960

No. 2 Pump Engine Power

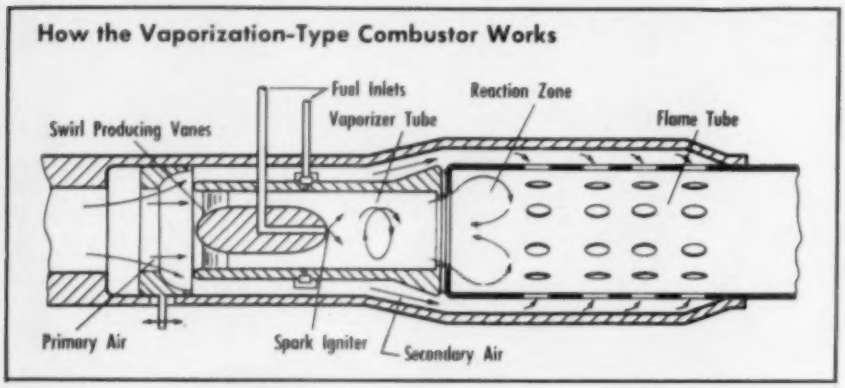
Bit No.	Bit Size	Bit Type	Serial No. Bit	Depth of Hole	Footage Each Bit	Hours Each Bit	Wt. on Bit Thousands	R.P.M.	Pump Liner Size	No. of Jets	Jet Size	Dull Char.	Remarks
8	8¾	YT-3J	894522	7314	226	19	35/40	90	7	56	7/16		
9	"	YT-1J	894295	7540	314	18	40	80	"	"	"		2000
10	"	"	894118	7854	249	16½	"	"	"	54			
1	"	"	894294	8103	316	14¼			"	"			
2	"	"	894117	8419	413	15½	"	"	"	"	7/16		"
3	"	"	994192	8832	152	17½	10	"	6	"	¼	6	"
4	"	"	N95343	8984	193	16½	"	100	"	65	"	3½	"
5	"	"	N95348	9177	109	9½	"	"	"	62	2½ "	3	"

REED

REED ROLLER BIT COMPANY Houston 1, Texas

EXPORT OFFICE: 1011 INTERNATIONAL BLDG., NEW YORK 20, N. Y.

GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN DECKER PRODUCTS.



◀ The principle of the pot-type burner, one of the oldest ways of burning liquid fuel for space heating, can be applied to the modern gas turbine and jet engine. A film of fuel is evaporated on hot metal, and mixed with air, to make . . .

Vaporized Fuel For Smokeless Jets

A method of applying the "vaporization" principle of combustion in gas turbines instead of the conventional "atomization" principle, has been developed, under sponsorship of the Office of Naval Research.

It was described last week at the summer meeting of the Society of Automotive Engineers, in Chicago, by A. W. Hussmann, of Pennsylvania State University, where most of the work was done.

Heretofore when liquid fuel was used in jet engines or stationary gas turbines, it was introduced into the "combustor" in as highly an atomized state as possible. This was done to obtain an intimate and rapid contact between the very small oil droplets and the oxygen of the combustion air.

The atomization principle, however, is not always fool-proof, and requires, for complete smokelessness, that the fuel have a high "Luminometer number" (PW—Apr.1'60, p26).

The atomization principle is used extensively in domestic and industrial pressure-type oil burners.

But liquid fuel can also be burned by applying another principle, that of rapid vaporization.

In the vaporization-type gas turbine, the fuel is applied as a film on the hot wall of a metal vaporizer tube, and converted into a gas (diagram, above).

Several elements must be provided to apply the method successfully:

- The fuel film must be spread evenly on the vaporizer tube, from which it receives heat for evaporation.
- Primary air must flow through the vaporizer with a vigorous swirl.
- A part of the products of combustion must be recirculated behind the flame front, to render the flame stable, and to burn completely all the fuel admitted to the combustion chamber.
- Secondary air must be provided to complete the combustion process and help in the recirculation of gases.
- A flow of air must keep the vaporizing tube from reaching an excessive temperature, at which some of the fuel might crack.

The work that led to the development of this type of combustor was done at Penn State with the cooperation of G. W. Maybach, of the Maybach-Motorenbau of Friedrichshafen, Germany.

Under proper vaporizing conditions, clean, "blue flame" combustion can be obtained over a wide range of air-fuel ratios, and when using a great variety of fuels, according to the Penn State scientists.

As long as blue flame combustion was maintained, absolutely no smoke or deposits were formed. Fuels with a high percentage of aromatics—which are notably unfit as jet fuels when using the atomization principle—could be utilized.

Even with a yellow flame such as occurs with aromatic fuels, rich mixtures, and high combustor pressures, the smoke was still light, Hussmann said, and the deposit was a soft, easily removable soot.

The space requirement for the engine is substantially less than for an atomization-type burner.

Because of the nature of the premixed flame combustion, the flame tube can be very small, Hussmann pointed out, and the length of the engine, including the vaporizing section, can thus be shorter.

There are still many problems to be worked out, Hussmann added, before the combustor, which is now in a test prototype stage, can be put into regular production. Among these are stability in transient conditions, and response to various rates of operation.

Why Chemicals from Petroleum?

The growth of the U.S. petrochemical industry was described last week to French engineers of the Societe de Chimie Industrielle, in Paris, by D. A. Shepard, executive vice-president and director of Standard Oil Co. (N.J.).

Shepard outlined three main reasons why petroleum is an attractive supplier to the chemical industry:

- Petroleum refining can make available certain materials not readily available from other sources.
- Petroleum sources can supplement the supply of products not available in adequate quantities elsewhere.
- Petroleum can usually supply the required products at lower prices than other sources.

Shepard also outlined the geographic location of the petrochemical industry in the U.S. The industry, he said, is spending about $1.9-billion for new construction between 1959 and 1961. About 75% of the total activity is one the East and Gulf Coasts, with little activity in the plains or mountain states.

Major centers are in Texas and Louisiana, which are also main locations for crude refining and natural gas availability.

What's New / IN PROCESSING AND PETROCHEMICALS

Esso Research & Engineering Co. will use a new automotive gas turbine for an extensive fuels and lubricants research program.

The first phase of the program will determine the performance characteristics of several commercial fuels and lubricants manufactured by Standard Oil Co. (N. J.) affiliates.

Manufacturer of the engine says it will perform well with a wide variety of fuels, including kerosine, JP, diesel fuel, and unleaded gasoline, without purging between fuels. Its exhaust gas temperature is 300F to 500F, and no muffler is required.

•

A new single-stage process based on the direct oxidation of a light petroleum fraction will be used at Distillers Co.'s proposed acetic acid plant at Hull, England.

The new facility is expected to cost about $5.6-million, and is slated to be operational in 1962.

The company says light fraction for the plant will be obtained from a petrochemical plant at Grangemouth, Scotland, jointly owned by Distillers and British Petroleum Co.

Since 1951, Distillers has been producing acetic acid by a two-stage process involving dehydrogenation of ethyl alcohol to acetaldehyde, which is then oxidized to acetic acid.

The new single-stage process originated in Distillers' research and development department. Plant construction is being handled by its chemical division.

•

A 110-million-lb.-per-year polyethylene plastic plant will be erected by Union Carbide Corp., near Ponce, Puerto Rico. Plastic production is scheduled for the second half of 1962.

Commonwealth Refining Co., which operates a refinery at Ponce, will supply ethylene to the facility as raw material. The plant will be constructed adjacent to an existing plant operated by Union Carbide Caribe, Inc., a subsidiary which makes ethylene glycol.

With production from Puerto Rico, Union Carbide's annual capacity of polyethylene will be about 700-million lb.

•

A 300-ton-per-stream-day ammonia plant using M. W. Kellogg Co.'s steam reforming process will be constructed near Joplin, Mo., for Solar Nitrogen Chemicals, Inc. Kellogg will begin construction in the near future; completion is expected in one year.

The plant will produce anhydrous ammonia from primary raw materials, including natural gas, steam, and air. Kellogg's process consists of three major steps: gas preparation, gas purification, and ammonia synthesis.

Atlas Powder Co., part owner of Solar Nitrogen with Standard Oil Co. (Ohio), will operate the plant, and Sohio Chemical Co. is the marketer.

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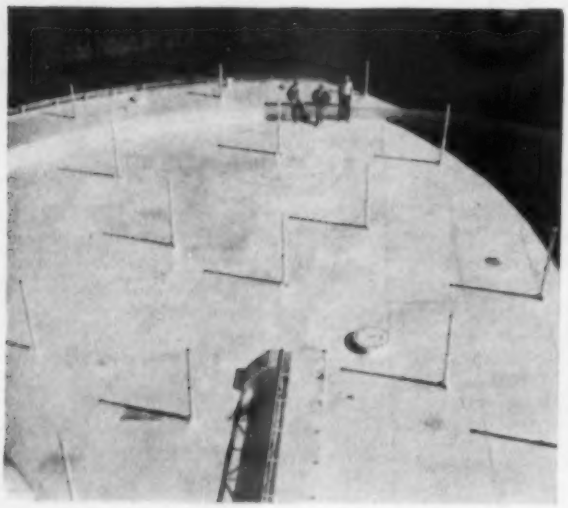
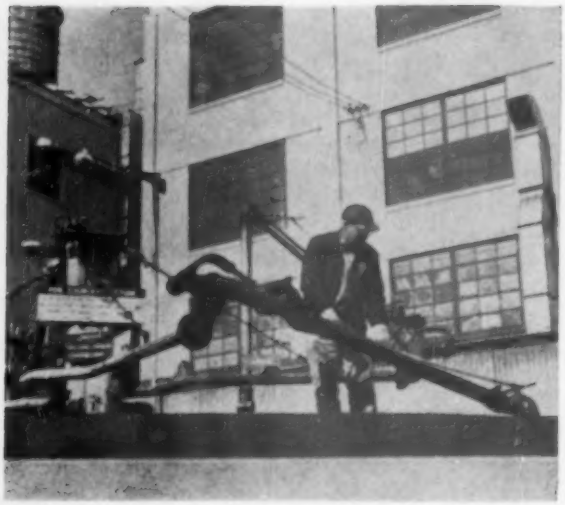


FLOATING ROOF TANKS used by Atlantic Refining, plus . . .



IMPROVEMENTS, like this submerged truck loader, pay . . .

Big Profits in Oil-Loss Reduction

Atlantic Refining Co. is saving about $1,268,000 a year on an initial investment of $1,630,000 under a program to reduce oil loss resulting from evaporation in tanks and other causes.

Atlantic's conservation project is company-wide. It includes separate, though coordinated, programs in its divisions of transportation, production, refining, and marketing.

Under its five-year-old program, Atlantic has been able to cut by 326,000 bbl. an estimated waste of 1.7-million bbl. a year of both crude and products.

The staggering waste was revealed in a survey conducted by the company in 1955.

Losses found in each of the company's individual operations were: domestic crude production, 500,000 bbl.; crude transportation, 385,000 bbl.; refining, 710,000 bbl.; product marketing and transportation, 118,000 bbl.

Biggest savings have resulted from conversion of most of the company's crude and products storage tanks from the fixed-roof to the floating-roof design (photo-left).

Atlantic estimates that about 65% of its total waste was due to evaporation from its tanks.

The remaining loss resulted from leaks in pipelines and refinery piping, and from evaporation occurring while loading tank trucks and unloading tankers.

Atlantic has cut crude loss along its Southwest pipeline system some 109,000 bbl. a year by converting 27 tanks to the floating-roof type, and by the installation of other new equipment.

Total cost of improvements on the system to date is $804,000. The 109,000 bbl. a year of crude saved is valued at about $446,000.

The changeover to floating roofs accounts for 92,000 bbl. of the saving. The job cost $271,000.

The company's Southwest pipeline system consists of three lines: a main line from East Texas and western Louisiana to Port Arthur, a line from the Crane-Midland area, West Texas, to Port Arthur, and another line from Crane-Midland to Barber Island.

Additional improvements include installation of five new positive displacement meters, at a cost of $94,000. While the meters have resulted in a saving of only 8,000 bbl. a year of crude, they have eliminated the need for three new tanks and two existing ones, which required rebuilding.

The saving thus realized amounts to a flat $152,000.

Installation of microballoon coverings in four of the tanks in the system has cut waste by another 6,000 bbl. a year, and line repairs account for the remaining 3,000 bbl. conserved.

Several other steps have been taken by Atlantic to curb waste of crude through evaporation—chiefly at the field storage stage.

These include the building of new condensate recovery systems and the study of possible new vapor recovery methods.

The largest single project was the installation of vapor recovery facilities for four 20,000-bbl. tanks in its Block 31, Crane Field, West Texas.

Atlantic has not given the cost of the new installations, but says they paid for themselves in less than a year in crude recovered.

The company says it's now studying the possibility of building vapor recovery systems for its tanks in other fields of West Texas.

And studies are under way on the use of chemicals instead of heat for emulsion treating, and on the advantages of emulsion treating as compared with those of batch steam treating.

Conservation efforts at Atlantic's Philadelphia and Port Arthur refineries—again chiefly involving modernization of tankage—have also yielded big savings.

Atlantic estimates that at its refineries it's reaping dividends of $315,000 a year on an outlay of $628,000. The saving represents a reduction in crude and gasoline losses of 100,000 bbl. a year.

At both refineries, a total of 25 tanks, both crude and gasoline, have been converted to floating-roof over the past four years.

Cost of tank reconstruction, plus recovery systems, has been $500,000.

The company is also testing a new

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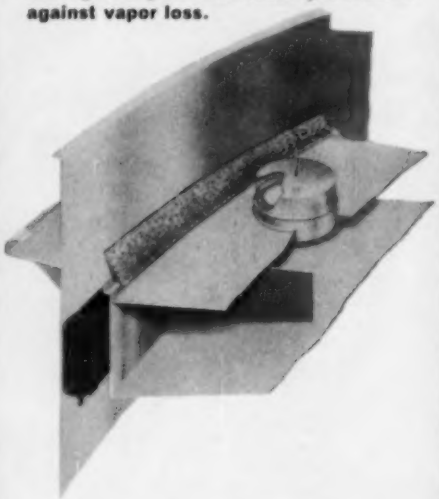

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Depend, too, on the Graver Pressure Seal to eliminate vapor space above the liquid, to reduce fire hazard and to seal out dirt, rain and snow. Centering rollers drain off static electricity. And because of the tube's flexibility, the roof can travel freely, even over projections, without breaking the seal.

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type of inflatable plastic roof on one of its smaller tanks at Trenton. The roof is described as looking like a plastic swimming pool, which is simply placed inside the tank and filled with air so that it floats on top of the liquid.

A major advantage claimed for this new kind of roof—called a "plastic raft"—is that it can be installed without taking the tank out of service.

Another $100,000 has been spent on construction of aboveground piping.

The reason for building the lines aboveground is to simplify inspection for leaks. Atlantic says that at least one major leak in underground piping, in excess of 1,000 bbl. a month, has been found each year at its Philadelphia refinery.

Smaller—though rewarding—loss reductions have been achieved through better equipment for loading trucks and unloading tankers.

With the increase in the overall size of tank trucks, Atlantic found, the loading arms at its terminals didn't reach to the bottom of the compartments, with the result that greater amounts of gasoline were lost during filling.

To overcome the splash due to the lack of reach of the loading arms, Atlantic replaced the arms so that they now reach to the bottom of the compartments (photo, page 76, right).

This cost the company $90,000, but it's realizing a saving of $200,000 a year on conservation of 35,000 bbl. of gasoline.

Atlantic's two new 28,000-ton tankers, which haul products from Port Arthur to the Eastern Seaboard, are also contributing to the program.

"Our newer supertankers are designed especially to handle products with the idea of getting a good pump-out," says a spokesman.

He says the new tankers' improved cargo-handling equipment is saving 10,000 bbl. a year, worth $50,000.

He explains that the reduced products loss isn't expected to pay for the ships, but that it's viewed as a corollary benefit of replacement of the company's outmoded T-2s.

Atlantic hopes to recover an additional 310,000 bbl. a year of crude and products, estimated to be worth $875,000, with an outlay of another $2.4-million.

By 1963, the company expects to have converted 23 more tanks on its Southwest pipeline system to floating-roof design.

In addition, the company is still using 37 fixed-roof tanks at Philadelphia, which it plans to convert.

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HERE'S WHY:

I. C. "Jesse" James, Drilling Superintendent for Jones & Pellow Oil Co. (operating four rigs in Oklahoma with drilling capabilities to 15,000 feet) is running more Reed bits these days. Mr. James says, "As a Rotary Driller since 1928 I have run lots of Reed bits—from 4¾" to 22" and found them very satisfactory. We are running more Reed bits than ever, with very good results and fine service from the Reed men."

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BIT RECORD—REED ROLLER BIT CO. Date 2-18 1960

Contractor JONES AND PELLOW Oil Co. SAME County KINGFISHER

Lease & Well No. GABEREL #1 Sec. 14 TW 19N R 6W Field or Town HENNESSEY

Type Drawworks NATIONAL 50 Tool Pusher JAMES

Length Drill Collar 602 O.D. 5⅝ I.D. 2¼ Drillers KNOPPEL / PHILLIPS / HOLCOMB

Tool Joints 4½

No. 1 Pump C-250 Engine Power

No. 2 Pump Engine Power

Salesman KEITH R. Dist. 42

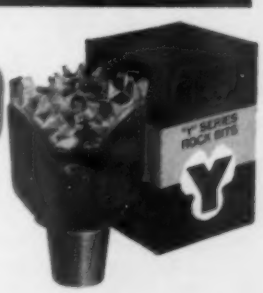
Spud Date Under Surface 2/14/60 2/18/60

CASING SIZE DEPTH DATE: 400

Total Depth and Date 6606-3-4-60

Bit No.	Bit Size	Bit Type	Serial No. Bit Used	Depth Out	Feet Drilled This Bit	Hours This Run	Wt. on Bit (1000 lbs.)	R.P.M.	Pump Liner Size	No. of Jets	Jet Size	Dull Grade	REMARKS
18	7⅞	YT1	105463	5402	233	13½	40	100	6½		1¼		
19	"	YT1	101087	5635	326	18½	"	"	"		"		
20	"	YT	D95437	5961	211	13	"	90	"		"		600 Pump
21	"	YS1	105306	6172	173	15	"	"	"		"		2-28-60 6040
22	"	YS1	104653	6345	245	21	"	"	"		"		Last Circ. 6110
23	"	YS1	N92351	6590	231	19	"	"	"		"		600 Pump
24	"	YS1	105305	6821	93	10	"	"	"		"		

REED



REED ROLLER BIT COMPANY *Houston 1, Texas*

EXPORT OFFICE: 1011 INTERNATIONAL BLDG., NEW YORK 20, N. Y.

GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS.

What's New / IN PIPELINES, TANKERS, STORAGE

Canada's National Energy Board has reversed its previous decision and agreed to authorize export of natural gas to the U.S. by Niagara Gas Transmission, Ltd. (PW—Apr.8'60, p23).

Niagara Gas plans to deliver up to 16.7-million cf/d to St. Lawrence Gas Co. for northern New York.

St. Lawrence's request to import the gas has been approved by Federal Power Commission Examiner Howell Purdue and is now before the full FPC.

NEB had ruled originally that the price for the gas was too low, but now says a "slightly higher" price has been agreed on.

And the FPC staff, when the project first came before it, had recommended import licenses be given New York State Natural Gas Corp. and Niagara Mohawk Power Corp., instead of St. Lawrence Gas.

•

Construction of what is said will be the world's largest crude storage tank has been started in Kuwait by Chicago Bridge, Ltd., British subsidiary of Chicago Bridge & Iron Co.

The 605,000-bbl. tank is being built for American Independent Oil Co., at Mena Abdulla, on the Arabian Gulf.

The tank will be 260 ft. in diameter and 64 ft. high. It will use more than 1,500 tons of steel.

The tank will be equipped with a Horton pontoon floating roof.

•

The cost of new tankers worldwide is more likely to rise than fall, according to E. J. Hunter, chairman of Swan Hunter & Wigham Richardson, Ltd., British shipbuilders.

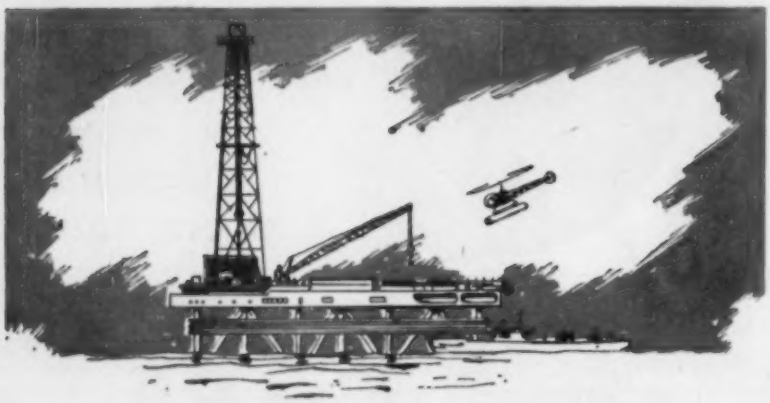
Reason given for possible higher costs is climbing wages and material prices.

•

Asphalt is being moved through a heated submarine pipeline, ship-to-shore, at Beirut, Lebanon.

The 1,880 ft., 10-in. pipeline was built by Esso Standard (Near East) Inc.

The asphalt is kept heated by warm oil circulating through two 2-in. lines, which are held against the main line by an insulating covering.



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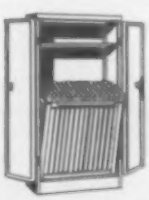
MAP  FILE

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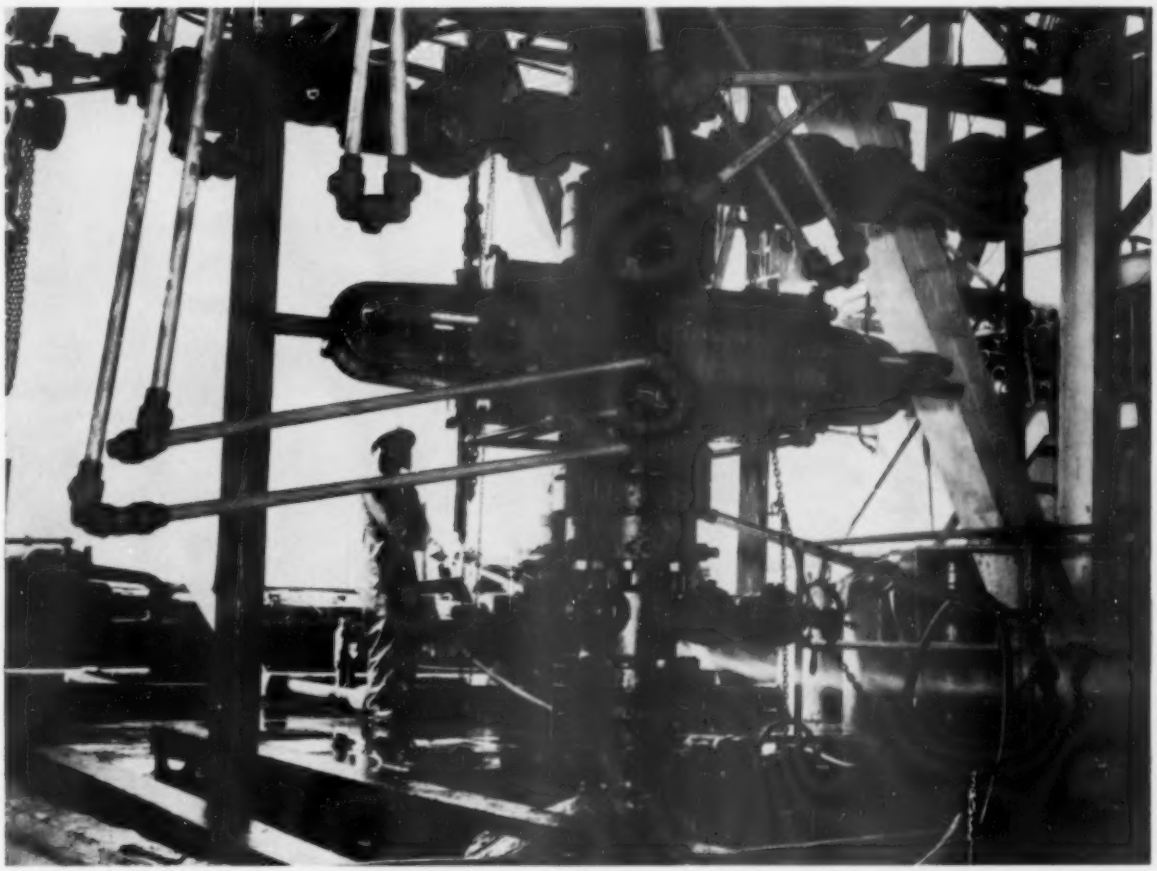
Chiksan Swivel Joints insure high safety factor



Chiksan Joints and Weco Unions on blowout preventer lines in offshore operations in Galveston Bay.

Convincing proof that Chiksan Swivel Joints measure up under severe conditions is shown in the following destruction test report: "In open flame trials, Chiksan Swivel Joints, under pressure of 1800 PSI, were subjected to flames reaching 650°F. The Swivel Joints functioned satisfactorily for a full 60 minutes—55 minutes longer than the time deemed necessary for the effective operation of the blowout preventer."

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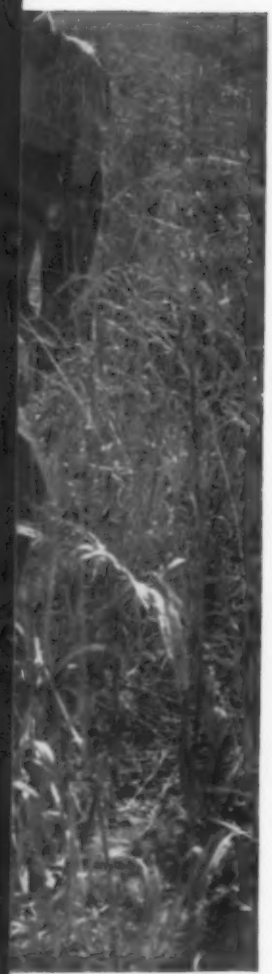
The key to these savings, according to Anderson, is *good* plastic pipe. In the manufacture of SRK, Republic starts with the finest raw materials, follows through with the best equipment and techniques, finishes only after *every length* of pipe has been thoroughly inspected.

SRK is available in a wide range of pressure ratings and sizes from ½″ through 8″. For further information, get in touch with your nearest Republic distributor. Or, clip and mail the coupon at right.

The pipe seen is 2″ Republic SRK (semi-rigid type) rated at 150-lb. It is being installed in the Anderson Company's Westbrook field by the San Andress Construction Company, Snyder, Texas.



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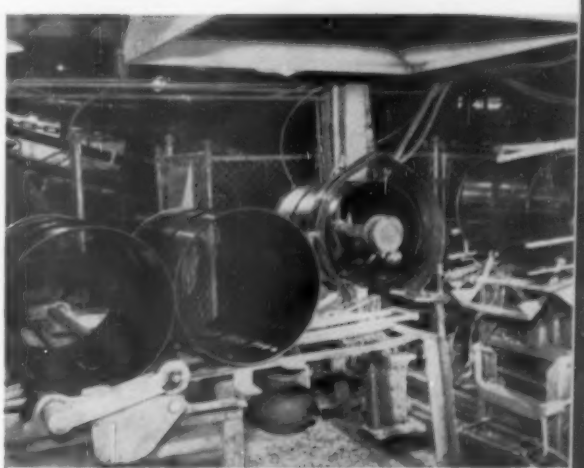

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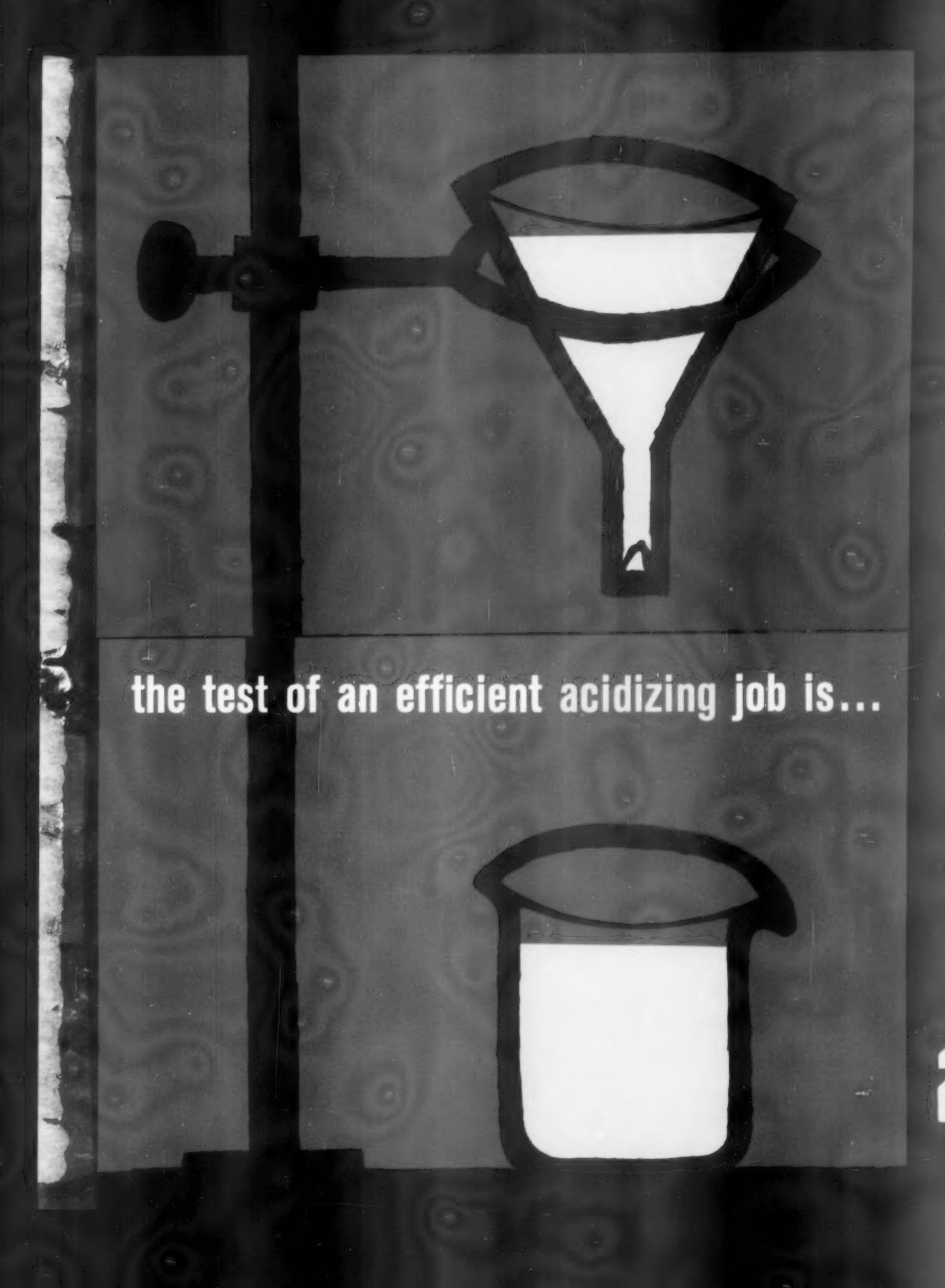
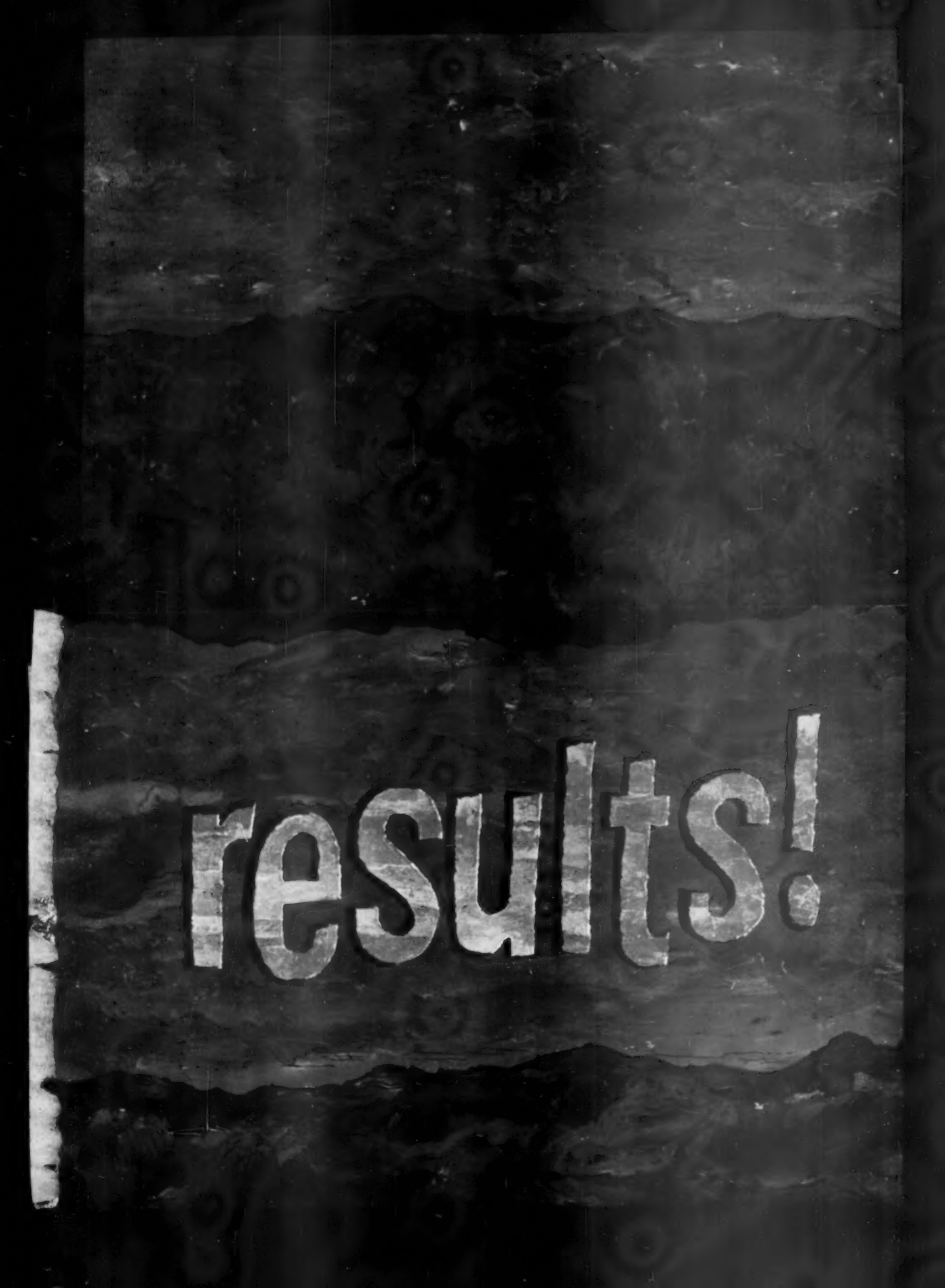
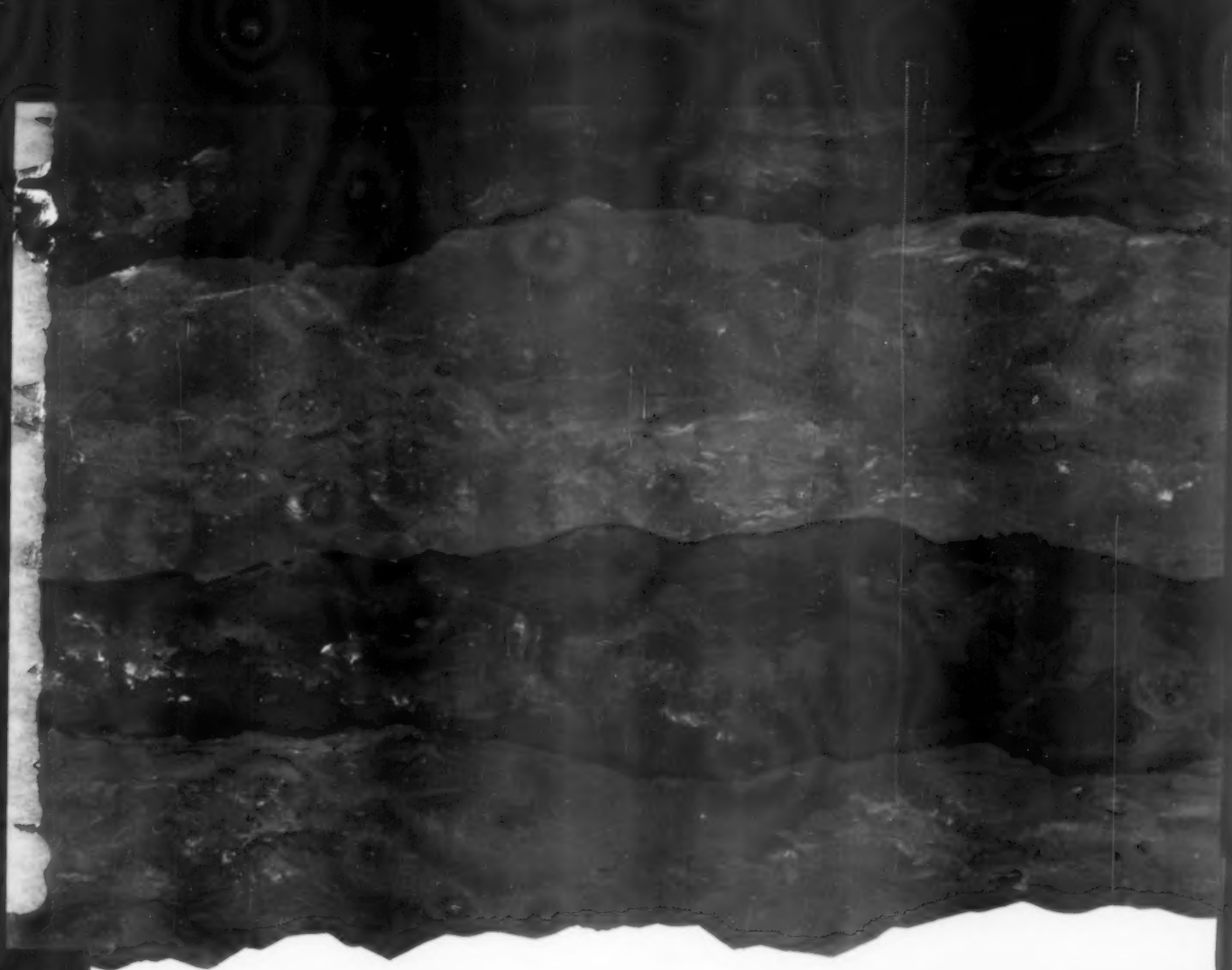

the test of an efficient acidizing job is...


results!



. . . and 28 years of results speak for themselves !

The purpose of any acid-treating job is simply this: to increase the flow of oil or gas.

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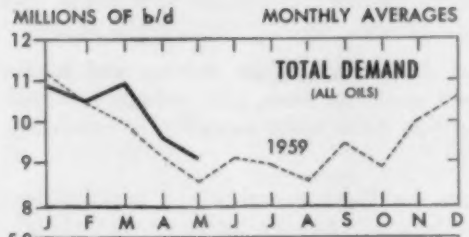
PETROLEUM WEEK'S

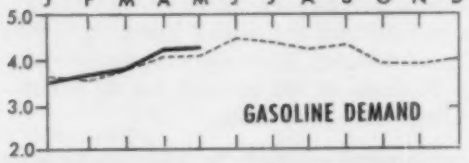
Fingertip Figures



Figures for period ended June 10, except as noted

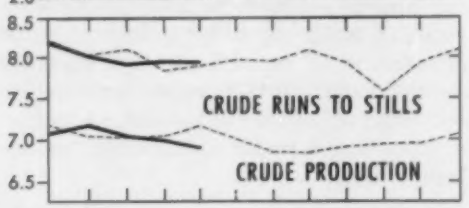
TOTAL DEMAND

Latest 4-week average	9.026
Year ago	8.908



GASOLINE DEMAND

Latest 4-week average	4.463
Year ago	4.373

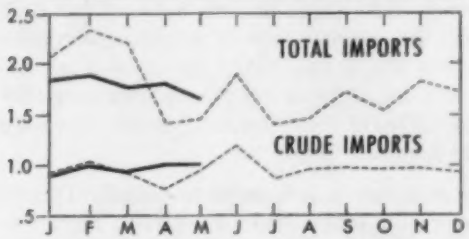


RUNS TO STILLS

Latest week	7.836
Previous week	7.961
Year ago	8.020

CRUDE PRODUCTION

Latest week	6.772
Previous week	6.781
Year ago	7.009

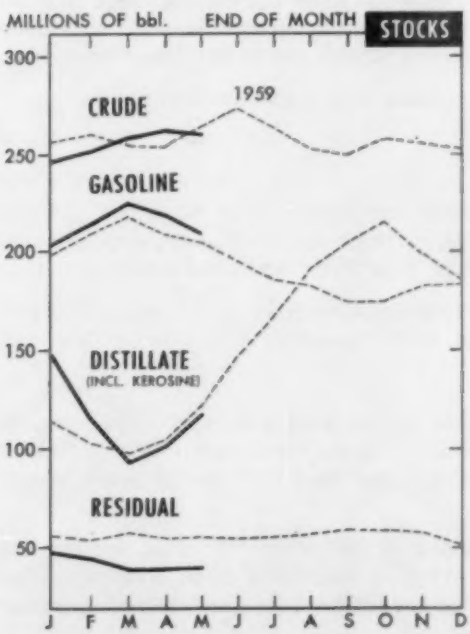


TOTAL IMPORTS

Latest week	1.654
Previous week	1.637
Year ago	1.218

CRUDE IMPORTS

Latest week	1.080
Previous week	1.139
Year ago	.875



CRUDE STOCKS

Week ended June 4	259.3
Previous week	259.7
Year ago	261.7

GASOLINE

Latest week	207.9
Previous week	210.0
Year ago	201.5

DISTILLATES

Latest week	126.9
Previous week	121.4
Year ago	132.7

RESIDUAL

Latest week	40.4
Previous week	39.7
Year ago	54.6

Mid-June finds the industry's economics on sounder footing. The way things are shaping up now, firmer product prices are just around the corner.

Refiners cut runs 125,000 b/d last week, bringing them down to 7,836,000 b/d—the lowest level in six weeks.

Over the past four-week period, throughput has averaged 93,000 b/d under the same period a year ago.

And total demand is standing up nicely, averaging 9,026,000 b/d for the past four weeks, up 118,000 b/d over last year.

There already are signs that gasoline prices have taken a turn for the better.

They have improved somewhat in the Midwest—chronically a problem area. And reports are that discounts seem to be disappearing on the Gulf.

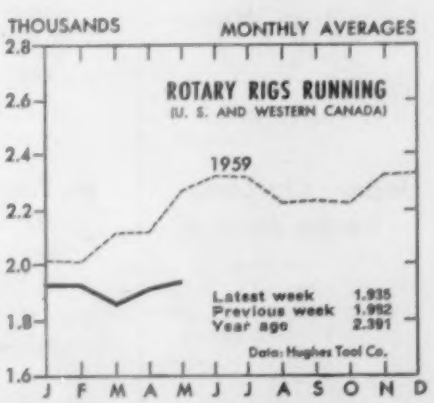
What helps the price situation a lot is the fact that motor fuel demand has been comparatively strong, and stocks are beginning to look less unwieldy.

Gasoline demand for the four-week period ended June 10 averaged 4,463,000 b/d, 90,000 b/d higher than last year.

While the weekly drawdown in stocks has been somewhat pokey for this time of year, inventories fell to 207.9-million bbl. last week. This is just 6.4-million bbl. higher than they were a year ago.

Distillates and resid are sharing in the improved price outlook.

Stocks are being trimmed to the point that prices later in the season may not be threatened by the traditional buildup in inventories that occurs during the summer.



The Market Trend

Which Do You Want, Money or Barrels?

Oil men are suffering from a beautiful case of split personality. One part of their mind says: "Get more volume." The other part says: "Get higher prices for the product."

In today's market, any idea of getting higher volume and higher prices at the same time just won't work. At least, high volume and high prices can't come together when you have spare capacity in producing, refining, and shipping.

Product by product, you can see these separate and contradictory bents—volume and price. There's the eager division manager (out of sight of the main office) who says his competitors are selling lower than they actually are—so he can show a good volume. Then there's the company that declined to bid last week on business it has enjoyed for 21 years—because this year it would be a money-loser on balance.

Right now, the get-more-money concept seems to be in the ascendancy for gasoline. Midwest prices are rising. A major marketer notes with pride that his average tank wagon realization in all areas has picked up 0.35¢ a gal. in the past month. On the other hand, another major deplores the continued writing of "discount" contracts for the sake of volume. As long as sellers write discounts into long-term sales, this major adds, all the "money progress" we're making now is temporary.

Heating oil is split on the money and volume notions between the Gulf Coast and New York. At the Gulf, the reduced flow of ratable crude, plus some moderation by refiners, leaves No. 2 fuel ready to climb from the current 8¢ cargo price. But in New York, a major supplier quotes a reseller a supply contract at a discount of 0.35¢ off the "discount" price, whatever the net after prevailing discounts happens to be.

And the fuel oil personality cleavage is a wonder to behold. There's a shortage in sight, but the volume-conscious New York rack holds unchanged at $2.19 a bbl.—or 28¢ below the more economical barge method of delivery. On the other hand, the lowest money-conscious bid on a 500,000-bbl. barge contract last week was $2.545—or 35.5¢ higher than rack.

So take your pick—price or volume. You can't have them both.

No Trouble Now From Price Wars:

The way local gasoline price wars are acting these days has the full approval of many refiners. Many of them are winding up, such as those in metropolitan Chicago, upstate New York, and the Carolinas.

And the new ones that are starting don't seem to have the virulence of other days. After a week or so, they stop.

Japan: On Long-Range Buying:

It's entirely possible that Japanese buyers soon will be reaching into the Caribbean for supplies of bunker "C" fuel. The reason: They have been unable to cover on the West Coast, and they have pretty much bought out the Persian Gulf.

The West Coast is Japan's best source for bunker "C" fuel, for you can always get a cheap (USMC—77½%) backhaul. Now, however, West Coast offerings are nil, and Persian Gulf sellers are talking September as their earliest offerings.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of June 13

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem.....11.75-12.75
- Gasoline, 92 oct reg.....10.75-11.5
- Kerosine 9-10
- Heating oil, No. 2.....8-9
- Gas oil, 48-52, d.i.....8.25-8.875
- Fuel oil, bunker "C".....$2.10-2.25

Caribbean, cargoes
- Avgas, Grade 100/130.....14.75
- Gasoline, 93 oct research prem.....11
- Gasoline, 87 oct research reg.....10.125
- Gasoline, 80 oct research.....9.375
- Gasoline, 70-72 oct motor method.....9.25
- Kerosine 9.25
- Heating oil, No. 2.....8
- Gas oil, 48-52 d.i.....8.25
- Fuel oil, bunker "C".....$2.00

New York Harbor, barges
- Kerosine 9.8-10.3
- Heating oil, No. 2.....8.8-9.3
- Fuel oil, No. 6.....$2.47

Okla.-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg.....11.5†-12.25†**
- Kerosine 9.125-9.625
- Heating oil, No. 2.....7.75-8.25
- **Fuel oil, No. 6.....$1.70†**

Chicago, bulk
- **Gasoline, 91 oct reg.....12†**
- Heating oil, No. 2.....8.5-10.35
- Fuel oil, No. 6 high sulfur.....7.4

Los Angeles, rack
- Gasoline, 88 oct reg.....11.4-12.65
- Diesel fuel, PS 200.....7.75-11.25
- Light fuel, PS 300.....$2.80
- Heavy fuel, PS 400.....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3.....4.5
- FOB Breckenridge, Tex.....4

LP-Gas
- Propane, Oklahoma (Group 3).....3.5-4
- Propane, Baton Rouge.....4.625-4.875

Pennsylvania Lubes
- Bright stock, 25 p.t.....24
- 200 vis. neutral, 25 p.t.....27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i.....26-27
- Neutral, solvent, 200-210 vis.....23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i.....26
- Neutral, solvent, 200 vis.....23

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130.....15.875
- Gasoline, 79 oct research.....9.75
- Kerosine 10.125
- Gas oil, 48 d.i. minimum.....9.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9.....$2.62-2.97
- North Dakota, 36.0-36.9.....2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9.....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9.....2.92-3.22
  - West Texas, sweet, 36.0-36.9.....3.00
  - West Texas, N.M., inter., 36.0-36.9.....2.93
  - West Texas, N.M., sour, 32.0-32.9.....2.71
  - East Texas, flat.....3.05-3.25
  - Mirando, 28.0-28.9 .....2.96-3.31
- **Illinois Basin, flat.....2.85↓-3.00**
- Pennsylvania Grade, Bradford dist., flat.....4.70
- California, Signal Hill, 21.0-21.9.....2.32†
- North Louisiana-Arkansas, 36.0-36.9.....2.72-3.02
- Wyoming, sweet, 36.0-36.9.....2.85-2.90
- Wyoming, sour, 32.0-32.9.....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.).....$2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.).....2.44
- Virden (Man.) 2.30

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz.....$3.10
- Oficina, 35.0-35.9, Puerto la Cruz.....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay.....2.30
- Bachaquero, flat La Salina.....1.85
- Tarra, 38.0-38.9, San Lorenzo.....2.83
- Lagunillas Heavy, flat, La Salina.....2.07

†Differential per deg. of grav. varies

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura.....$1.90
- Safaniya, 27.0-27.9, Ras Tanura.....1.50
- Iran, 34.0-34.9, Bandar Mashur.....1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao.....1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi.....1.67
- Qatar, 41.0-41.9, Umm Said.....2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud....1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud...1.38

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon.....$2.27
- Iraq, 36.0-36.9, Tripoli, Banias.....2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat.....$2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean (USMC—22½%) $2.21↑
U.S. Gulf-New York, dirty (USMC—27½%) $2.07↓
NWI-USNH, dirty.....(USMC—60%) $1.10↓
NWI-UK/Cont., dirty .....(Scale—57½%) 13/11*
Persian Gulf-UK/Cont., dirty....(Scale—67½%) 22/2*
Persian Gulf-USNH, dirty.....(USMC—75%) $3.18

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60-mile line of The Peoples Gas Light and Coke Company and Chicago District Pipeline Company spans congested area —under rivers, streets and railroads with minimum disturbance and maximum protection to populace

It was business as usual during construction of the third Calumet Line — a 36-inch pipe that will ultimately deliver 557 million cubic feet of natural gas per day to the Chicago area. Although the line crossed 77 roadways, 25 railroads and six principal streams, careful planning kept road, rail, barge and ship traffic flowing smoothly.

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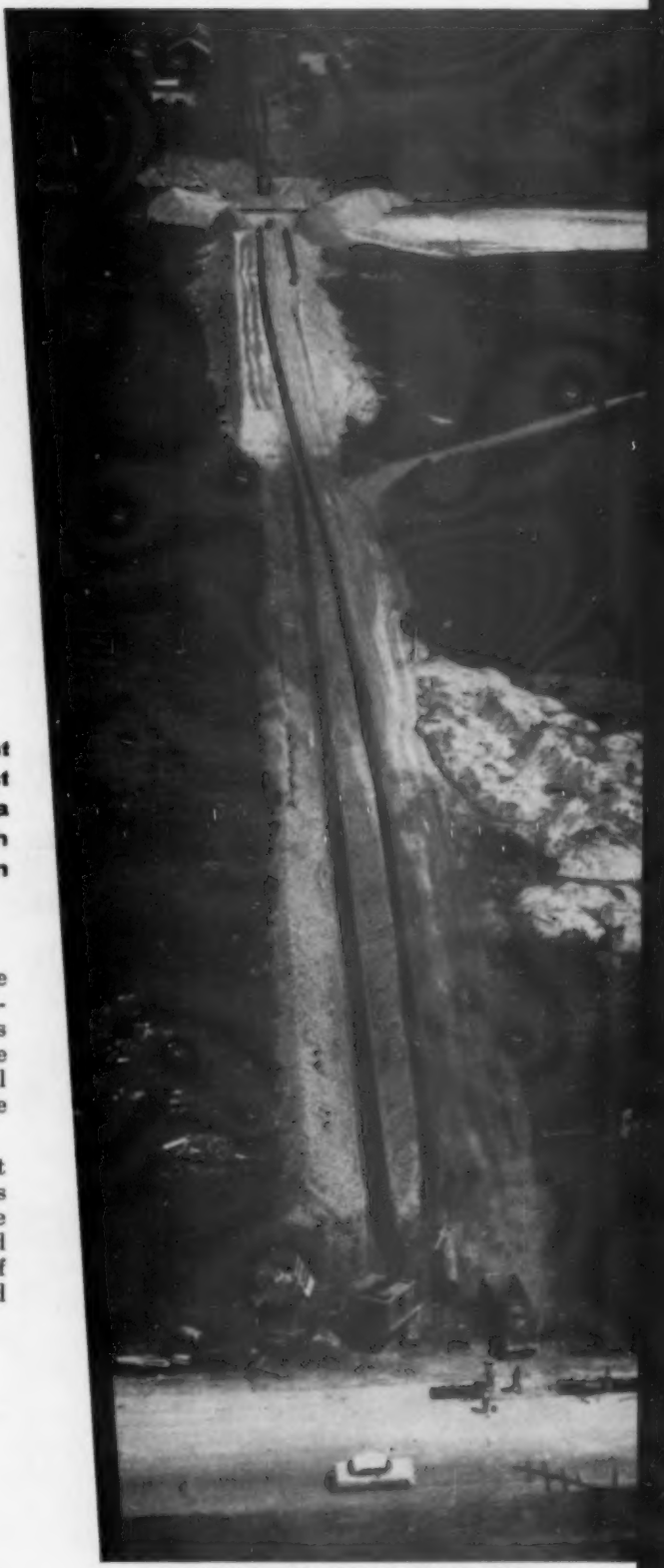


ROADS — Pipe tunneled under 77 roadways. Special steel plates were used to cover trench to keep streets, driveways and parkways open. In residential areas, special rubber-tired equipment kept down noise . . . mechanical sweepers kept down dust.

RAILWAYS — Line crossed 73 tracks of 17 railroad companies. Here workmen are installing steel casing for the line under the Atchison, Topeka & Santa Fe and The Gulf Mobile & Ohio tracks south of Joliet.

STREAMS — Line dives under the Calumet River on Chicago's south side. Tunnel is 687 feet long. Top of the tunnel is 60 feet below the surface. One of six river crossings constructed on the third Calumet Line.

DEPT/Marketing

Why Suppliers Oppose Cash Discounts

- **They're faced with a dealer demand that discounts, now granted on oil and TBA, be extended to gasoline.**
- **But they argue that discounts wouldn't achieve their usual purpose of speeding up payments by dealers.**

A spot check of major oil company marketers reveals a general displeasure at the thought of extending the use of cash discounts.

Thus far, marketers have had to accustom themselves to giving dealers a discount on such items as tires, batteries, oils, and greases, whenever dealers submit payment by around the tenth of the following month.

But most marketers polled by PETROLEUM WEEK believe that these discounts are not very beneficial for oil companies. Nevertheless, marketers seem bound to give this subject closer study in the months ahead.

The major reason for renewed debate on the use of cash discounts is the growing insistence of dealers that they receive the discounts on purchases of gasoline.

At the recent API Service Station Advisory Committee meeting, dealers were given their first opportunity to bring their demands out into the open (PW—May 27,'60,p52).

The dealers had hoped to get API to authorize a study of cash discounts (similar to the study on trading stamps that was presented last November). But the proposal was voted down 18-8 by the committee, which was equally balanced between dealers and suppliers.

Next November, dealers seem certain to make another appeal for an industrywide review of cash discount practices.

According to John Nerlinger, executive secretary of the National Congress of Petroleum Retailers, the study of cash discounts will be thoroughly discussed at the NCPR convention in August, and the results presented at the API Chicago meeting in November.

The suppliers' major objection to cash discounts on gasoline sales is that they would lower profit margins without speeding up dealer payments.

Almost universally throughout the industry, they say, gasoline bills are already paid promptly by dealers. Most dealers buy on either a cash basis or a load-to-load arrangement, whereby they pay for one delivery when the next arrives.

Dealer representatives say that dealers should receive some recognition for this prompt payment. But at 1% or 2% a month, suppliers say, it is too much to pay just to improve dealer-supplier relations.

Says one supplier: "We've got to maintain our margins somehow. If we have to give cash discounts on gasoline, it will mean that we'll just have to raise tankwagon prices to cover them."

Many suppliers regret that the industry has fallen into the habit of giving cash discounts on oil, grease, and TBA items.

One credit manager for a major company attributes the beginning of cash discounts in TBA sales to the influence of TBA suppliers, who set a standard the oil companies felt obliged to follow.

This practice is apparently universal throughout the country, though discounts on oil and grease are more prevalent in the East than in the West, he says.

A few marketers believe that discounts on the slower-moving TBA items do tend to speed up payment of bills by dealers. But the real reason such discounts are made, it seems, is that "my competitor gives them so I have to."

Discounts on gasoline to unbranded dealers, suppliers say, may not be so much a habit that the industry has acquired as a way of cutting prices.

The existence of cash discounts on unbranded sales is particularly goading to dealer representatives. To illustrate, Nerlinger speaks of a "member dealer who has both a branded dealership and an unbranded one—and he obtains the unbranded fuel at a discount from the same company that won't sell him branded gas at a discount."

But some suppliers view discounts to private-brand dealers as a way of giving price concessions that are standard practice wherever competition for these accounts is strong.

Further, where private-brand operators are large-volume accounts, the cash discount may also be interpreted as a sort of volume discount.

One supplier who does interpret discounts to private-branders this way, expressed surprise at dealer demands to "broaden this form of price discrimination." Not all branded dealers would always be in a position to take advantage of the cash discount, if a widespread offering of such discounts were made, he says. Cash discounts would therefore favor the more financially able dealers, he concludes.

Despite these objections by suppliers, dealers feel a sense of progress in the success they are having in making their wishes heard.

At the recent API meeting, dealers were permitted to raise any questions they pleased, as long as they did not bring the committee to the point of voting on matters that are largely competitive. Not long ago, in comparison, a discussion of any topic that bordered on price arrangements (and cash discounts is such a topic) was barred, dealers recall.

How to Up Prices, Win Sales Too

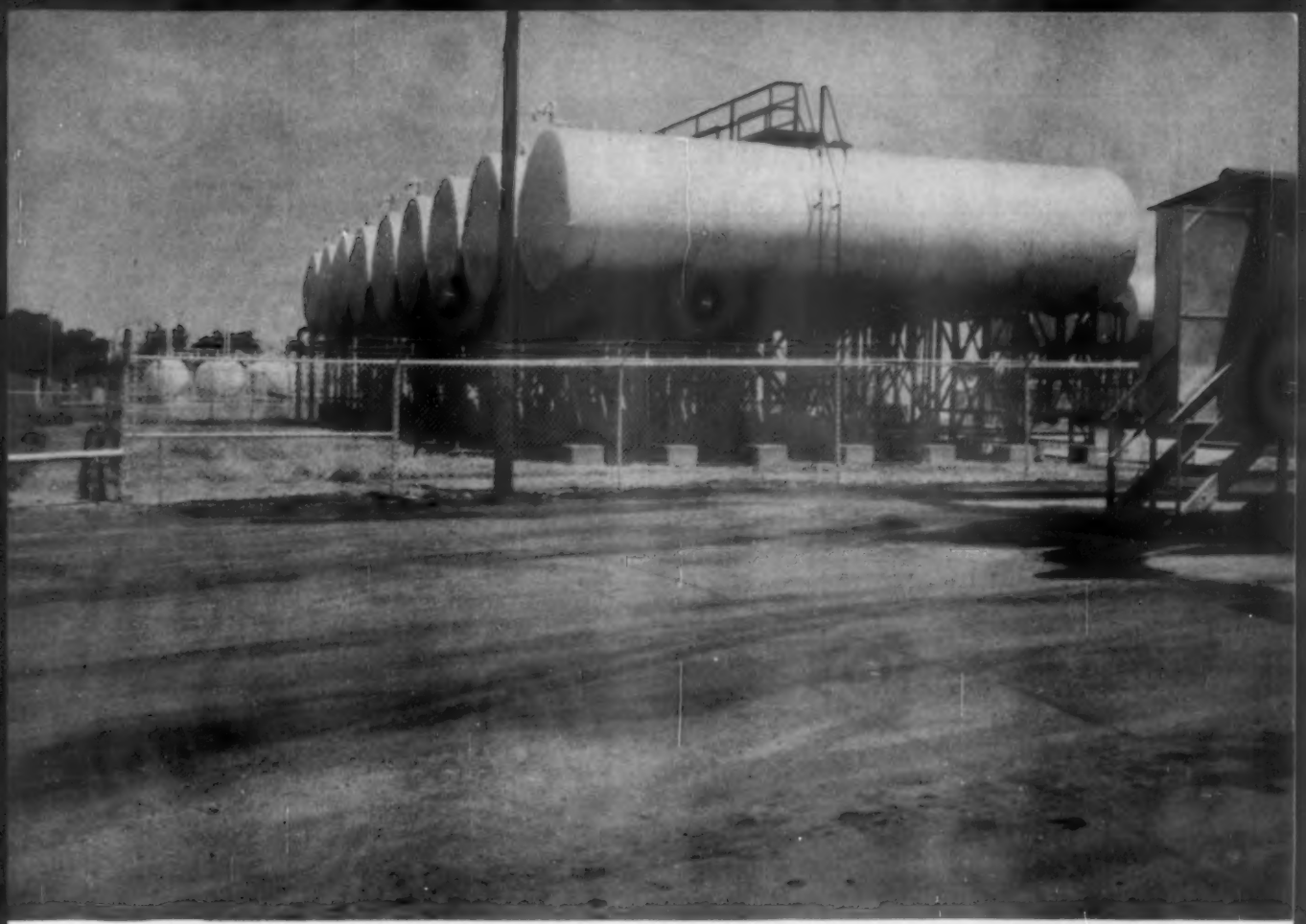
Heating oil distributors who want to compete more effectively against natural gas were offered a solution last week: A new survey suggests raising the price of heating oil.

This suggestion is the main implication of a report given by Walter J. Salmon, of the Harvard Graduate School of Business, before the Oil Heat Institute of New England.

Salmon's report was a summary of a $25,000 survey financed jointly by Harvard and OHI, covering 83 jobbers of various sizes in the Greater Boston area. The full report will be released in September.

For those who fear that price increases would be asking for trouble, the survey reveals that the retail price obtained for heating oil has virtually no relationship to the rate of gain in retail oil customers.

Nor, Salmon told OHI, is customer



• The Skelly Oil Company kept the area around these butane-propane storage tanks completely free of weeds for a whole season by spraying the ground with Du Pont "Telvar".

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A service of Gulf Oil Corporation in the cause of creating—through the facts as we see them —a fuller understanding of the oil industry.

Oil's amazing building blocks

Oil used to mean fuel and lubrication—and that was it. But the oil industry has known for years that the gases given off in refining could also be processed into valuable chemicals. Only with the advent of modern refining has it become economical to make the most of these gas and liquid fractions. Today's refineries produce enough raw materials to feed a new kind of oil-chemical industry. We call that industry *petrochemicals.*

Q. Would you identify some things that trace their origin to oil?

A. The polystyrene in your hairbrush handle is petrochemical. So is the melamine in plastic dinnerware. The synthetic detergents you wash the dishes with. The polyester fibers in the clothes on your back. The polyethylene in squeeze bottles. Petrochemicals may turn up in boats, football helmets, fertilizers, paints, explosives or sandwich wrap, to name but a very few uses.

Q. What brought about this great activity in petrochemicals?

A. It began partly with World War II. The frantic hunt for synthetic rubber, explosives and high octane gasoline components put petrochemical development on a crash basis. Butadiene and styrene were needed in large quantities for synthetic rubber. Eighty-five percent of all rubber in the War was synthetic. Today, better than 90% of passenger car rubber is petrochemicals.

Q. You indicated petrochemicals owe their success to more than the War?

A. Yes, in large part they owe their rise to new refinery processes such as catalytic cracking. Besides boosting gasoline octane ratings, "cat cracking" upped the output of gas residues from which petrochemicals are made. It takes a tremendous investment in refinery equipment to transform that gas into petrochemicals. But this increased source of supply made such an investment economical.

Q. Does this transformation take place at the refinery or elsewhere?

A. It starts at the refinery. Here the gases and liquid fractions undergo a costly process of upgrading. They are then delivered in compressed gas or liquid form to chemical companies. There these molecular building blocks are rearranged into an almost limitless number of compounds never before known to man. Matter as hard as steel, elastic as a rubber band, buoyant as cork.

Q. Earlier you mentioned rubber. What other industries have been affected by petrochemicals?

A. The chemical industry itself, for one. In 1920, there were two chemical plants producing 75 tons of petrochemicals. Today, there are many hundreds producing some 20,000,000 tons per year. This is one-third the volume of all chemical production in the U. S. Or, look at these figures. Synthetics from oil now add up to 75% of all soap and detergent sales. Ninety percent of U. S. fertilizer nitrogen is obtained from petrochemicals. Synthetic fibers make up about 10% of all textile production, and that figure is growing rapidly.

Q. How fast is the petrochemical industry growing over-all?

A. All through the 1950's the industry grew at the phenomenal rate of 14% a year, as against 4.1% for the all-industry average. The growth rate, economists tell us, should continue at a healthy 8 to 10% yearly clip in the 1960's.

Q. Has Oil felt this boom to the extent the chemical industry has?

A. Petrochemicals use the equivalent of about 60,000,000 barrels of oil a year. That is about a barrel in every 50 of crude produced. That barrel however, supports a petrochemical industry worth $6.7 billion in capital investments and employing over 150,000 people.

Q. What petrochemical products are we likely to find in our future?

A. That is hard to pin down. Based on our present knowledge, petrochemicals *could* replace many hundreds of items that are now made with natural resources. Plastics, for instance, will wind up in more and more products now made of wood, metal, ceramic, paper and glass. But the really exciting future of petrochemicals may very well lie in the discovery of products that don't even exist at the present time.

Q. This indicates a great need for continuing research, doesn't it?

A. The research laboratory is the heart of the petrochemical industry. Oil companies are putting $45 million a year into petrochemical research so we may continue to find exciting new uses for oil. Our research people would be the very first to tell us that present achievements in petrochemistry are only a start. Synthetic foods, indestructible bridges, engines that never wear out—they may all be in Oil's future. And that future's limited only by man's imagination.

We welcome further questions and comment. Please address them to Gulf Oil Corp., Room 1300, Gulf Bldg., Pittsburgh 30, Pa.

growth affected by dealer size, brand name, or lenient credit and payment policies.

More important than all these is the rate of the new building construction in the community.

But since most jobbers don't have the capital to buy out distributors in growing communities, Salmon offered another factor, which he says has "perhaps the stronger relationship" to customer growth:

The ratio of equipment and service sales, the survey shows, is a vital factor in improving heating oil sales.

The estimated median gain in retail oil customers among the 83 Boston jobbers in 1957 was 6.9%. To improve this rate, Salmon stressed the importance of increased sales of oil equipment and servicing.

In order to finance these sales, jobbers should consider improving their gross profit margins. This is the main reason for increased heating oil prices.

Since, as Salmon's report shows, heating oil jobbers need not worry about prices set by either gas utilities or competing jobbers, they can improve their own margins by freely raising their own prices.

It all boils down to a need for increased returns on investment for heating oil jobbers, Salmon said. He found that the median return of 9.15% (before taxes) for jobbers in the Boston area should be raised to 15%, if jobbers are to attract more capital and new blood.

What's New / IN MARKETING

Lube marketers face another setback next year: Sources in Detroit have revealed that both the Ford and the Falcon may have lubeless bearings in steering and front suspension systems.

For the remaining bearings, Ford may recommend 10,000-mi. greasing intervals.

Decision to go ahead with the lubeless Teflon bearings still hinges on a study of added costs.

•

Mobil Oil Co., by introducing tetramethyl lead (TML) to Venezuela this month, is first to market the additive overseas.

Standard Oil Co. of California, Western Operations, Inc. beat Mobil in the race to introduce TML to this country (PW—May6'60,p58). In its drive to bring the additive to the East, Mobil was nosed out by a single day by California Oil Co., another subsidiary of California Standard.

Mobil is now test-marketing TML in Syracuse, N.Y., and Sioux City, Iowa.

•

Congress drew closer last week to raising the minimum wage to $1.25 an hour, and extending coverage to more oil marketing employees.

Here are some provisions voted last week by the Senate Labor & Public Welfare Committee:

- Minimum wage increase would be spread over three years.
- Employees at company-owned service stations (and other newly covered workers) would gradually be given full overtime benefits.
- Jobbers who gross more than $1-million a year would have to extend benefits of the law to their employees.

In the House Labor Committee, similar action was taken.

•

Two East Coast marketers last week picked up yardage in the struggle for controlled gallonage—Tidewater Oil Co. and California Oil Co.

Tidewater, which is on a march into the Southeast (PW—Mar.18'60, p88), won territory from a competing marketer by buying out Wheless Oil Co., a former Texaco jobber in Louisburg, N.C.

Meanwhile, in Portland, Me., California Oil purchased one of its distributors, Community Oil Co., which markets in both Maine and New Hampshire.

•

Puerto Rico's popularity with oil marketers has now attracted Standard Oil Co. of California. The company plans to sell throughout the island—probably with imported products.

Standard joins Mobil Oil Co., Gulf Oil Corp., and Sinclair Oil Corp. in the new rush to the island. Established marketers include Texaco Inc. (260 stations), the Esso Standard Division of Humble Oil & Refining Co. (210), and Shell Oil Co. (200).

•

For many heating oil marketers, it is inconvenient to leave a ticket whenever they deliver to a customer. Last week, officials at the National Conference of Weights & Measures finally recognized that inconvenience.

At last year's conference, the Bureau of Standards had given oil marketers a scare by proposing a model state law that would require tickets to be left at delivery time. But last week, bureau officials appended "or within a period mutually agreed upon" to their original proposal.

Some markets feared that this would be interpreted as requiring written agreements. So, as a last minute gain, oil men won another change: "In writing or otherwise" was added to the model state law.

Such laws are suggested to the states for individual adaptation.

•

Texaco Inc. hopes to round up 95 to 100 radio stations, covering 95% of the country's radio audience, for its own Metropolitan Opera network of stations.

All stations of the network would carry the programs live.

The marketer, which has sponsored the opera broadcasts since 1940, has been disturbed by the way major network stations have been delaying the Saturday afternoon broadcasts, presenting them sometimes up to a week late.

•

California service station dealers who advertise trading stamps must post a price for gasoline that includes the cash surrender value of the stamps.

This is how the state attorney general, Stanley Mosk, interprets the effect of his finding last week that trading stamps are a form of price discount.

This finding subjects them to state laws governing the advertising and posting of gasoline prices.

BEN A. HILLIARD, JR., has been appointed domestic sales manager for the Baash-Ross division of Joy Mfg. Co., with offices in Houston. Hilliard was Gulf Coast and export sales manager of Web Wilson Co. when it merged with Baash-Ross earlier this year. He has also served as general sales manager for Byron Jackson Tools, Inc.

B. A. Hilliard, Jr.

B. W. Gamson

DR. B. W. GAMSON becomes vice-president in charge of new products development for Byron Jackson Tools, Inc., subsidiary of Borg-Warner Corp., with offices in Los Angeles. For the past four years Gamson has been associate director of the Roy C. Ingersoll Research Center, Borg-Warner's research and development facility at Des Plaines, Ill. Gamson, who was involved with the development of the nuclear magnetic log at the research center, has also been associated with Socony Mobil Oil Co.

H. D. WITT has been appointed salesman at El Dorado, Kan., for Jones & Laughlin Supply Division, and **T. D. Bruce** succeeds him as manager of the El Dorado store. Bruce was formerly storeman there.

W. F. KRUEGER, Houston, has been appointed sales representative in Texas and Louisiana for Pipe Line Development Co. The company manufacturers products for pipeline repairs.

DICK L. HERRICK becomes sales representative for the Lafayette (La.) oilfield equipment office of Delta Tank Mfg. Co. Herrick has been in sales and service of oilfield equipment for the past two years.

D. L. Herrick

G. R. Hodgson

G. REID HODGSON has joined Bowen Itco, Inc., Houston, as director of engineering and research. He will direct research and development of new oilfield specialty tools, as well as supervise product engineering and quality control of all products. He was formerly director of engineering and research for Johnston Testers, Inc.

K. Dawkins W. M. Larkin B. F. Thompson

PETROLEUM ELECTRIC POWER ASSN. elected officers and directors for the fiscal year ending 1961, at its annual meeting last week in Jackson, Miss. **W. M. Larkin,** Gulf States Utilities, is president, **B. F. Thompson,** Public Service of Oklahoma, vice-president, and **Kirby Dawkins,** West Texas Utilities, secretary-treasurer. Larkin was vice-president of the association last year. New directors are: **D. S. Coffman,** Texas Power & Light, last year's president; **Langston Ashford,** Central Power & Light; **Paul Atwell,** Mississippi Power & Light; **James E. Moody,** Southwestern Electric Power; **H. P. Lindsey,** Arkansas Power & Light; **H. A. Winters,** Oklahoma Gas & Electric; **F. R. Woermer,** Texas Electric Service; **J. E. Reed,** New Mexico Electric Service; **Julian W. Taylor, Jr.,** Houston Lighting & Power; and Dawkins.

J. D. MAYSON, secretary of Dresser Industries, Inc., Dallas, has also been named vice-president. In his new position he will direct legal, tax, and insurance activities. Mayson joined Dresser in 1944 as tax attorney, and in 1949 was promoted to director of the legal department. He was named assistant secretary in 1957, and later that year became secretary.

J. D. Mayson

W. R. Horkey

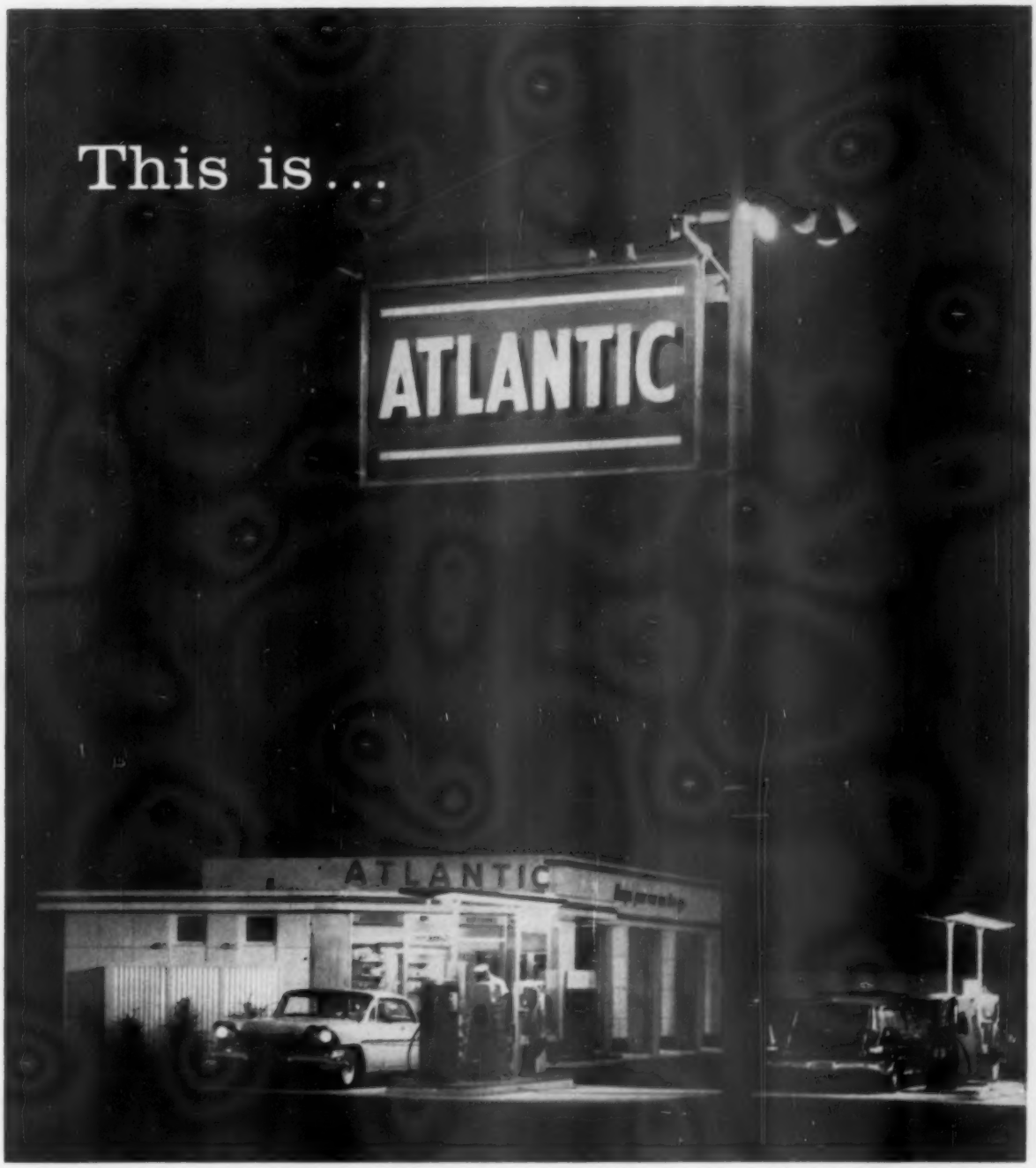
WILLIAM R. HORKEY has been named vice-president and general counsel of Helmerich & Payne, Inc., Tulsa. He joined the company's legal department in 1955. Horkey is a member of Helmerich & Payne's executive committee, and has been a director since 1958. He is also an officer and director of several of the company's subsidiaries, including Helmerich & Payne, C.A., Venezuela; White Eagle Overseas Oil Co., the Philippines; and Engineering-Construction Co.

ROBERT T. HENNES has been appointed director of public relations and advertising for The Lummus Co., New York, and **Harold C. Heaslip** succeeds him as advertising manager. Heaslip was formerly assistant advertising manager.

ARTHUR F. BAKER becomes comptroller of the W-K-M division of ACF Industries, Inc., with offices in Houston. He succeeds **C. M. White, Jr.,** who has transferred to the comptroller's staff of ACF, in New York. Baker, who joined ACF in 1926, has held several positions on the comptroller's staff of ACF, and of its operating divisions.

J. B. KNAUTH is the new salesman at Liberal, Kan., for Jones & Laughlin Supply Division. He was formerly a sales trainee at Liberal.

H. E. HANSON has been named vice-president of Fairbanks, Morse & Co., Chicago. Hanson, who was most recently acting manager of the Beloit (Wis.) division, has also been appointed general manager of that division. He joined the division last year as general manager of the diesel, engine, compressor, locomotive group. He has been with Fairbanks, Morse since 1934. **Ervin L. Dahlund** has been appointed general manager of the diesel, engine, compressor, locomotive group in the Beloit division. Dahlund, who joined the division in 1936, was its chief diesel engineer from 1949 to 1956, when he became director of engineering for the Albuquerque (N. M.) division of ACF Industries, Inc.



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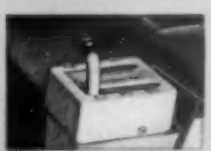

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E. W. Dissler

J. W. McColl

E. W. DISSLER has been named manager of exploration for Cities Service Oil Co., Bartlesville, Okla., and **JAMES W. McCOLL** heads a newly formed group for the acquisition of new properties. Dissler succeeds **Reese H. Tucker,** who has been elected vice-president of the parent Cities Service Co. Dissler has been vice-president and manager of Canada-Cities Service Petroleum Corp. for the past three years. He is also vice-president of Cities Service Athabasca, Inc. McColl, who joined Cities Service's land department in Bartlesville in 1939, has been superintendent of that department since 1952.

JOHN H. DOUMA, vice-president of Sunray Mid-Continent Oil Co., is manager of its new western division, in Denver, which is a consolidation of the West Coast and Rocky Mountain divisions. Douma was formerly in charge of the West Coast division. The new division will conduct exploration and production operations in 14 western states; district offices will be located in Newhall and Bakersfield, Calif., Salt Lake City, Utah, and Casper, Wyo.

N. B. MAVRIS and **J. C. PHELPS** are new vice-presidents of Continental Pipe Line Co., Ponca City, Okla. Mavris, formerly manager of administrative services and communications, is vice-president in charge of operations. He succeeds **John L. Kelly,** who has transferred to Ft. Worth as assistant manager of Continental Oil Co.'s southwestern region. Phelps, formerly manager of new plans and projects, is now in charge of planning and engineering.

WALTER H. SPECKHARD moves up to southern exploration division manager for British-American Oil Producing Co., with offices in Houston. He has been area geophysicist in Dallas since 1957. Speckhard joined British-American in 1955 as a division geophysicist.

E. L. (Woody) HIATT, vice-president of Union Oil Co. of California, is now responsible for its Glacier division, with headquarters in Great Falls, Mont. Hiatt, with Union Oil since 1933, was most recently vice-president in charge of transportation and supply. In his new position he will be in charge of the division's exploration, production, refining, transportation, supply, and marketing activities.

LEO R. NEWFARMER has been named head of Shell Oil Co.'s newly created exploration department in Houston, and **John T. Doyle** has been named manager of the gas utilization department in New York. Shell's new department in Houston will work closely with its exploration and production research groups, and will report directly to the head office exploration department in New York. Newfarmer was most recently exploration manager for Shell's Pacific Coast area, and Doyle was assistant to the vice-president in charge of that area.

L. R. Newfarmer

A. L. Thompson

ALBERT L. THOMPSON has been promoted to crude oil purchasing and pipeline superintendent for the Lion Oil Division of Monsanto Chemical Co., El Dorado, Ark. He replaces **Rodney R. Landes,** who has resigned. Thompson, who joined Lion in 1956, has been an engineer in the pipeline department since 1957.

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G. E. BURPEE becomes assistant to Shell Oil Co.'s vice-president in Houston. **W. R. Lund** succeeds Burpee as manager of the Houston area production department. Lund has been production manager in New Orleans since 1957. Burpee, with Shell for the past 28 years, was named chief exploitation engineer at Houston in 1946. He became Houston area production manager in 1947, and has held that position since then, except for a period during 1950 and 1951 when he served as production manager for Shell in Calgary.

LEE A. ADAMS, JR., is in charge of Kern County Land Co.'s purchases of oil and gas properties, at its new Dallas office. He was formerly division reservoir engineer for Pan American Petroleum Corp., at Ft. Worth. The Dallas office is Kern County's second in Texas; the first was established at Midland in 1957.

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DICK T. FENWICK moves up to assistant to **L. G. Rheinberger**, vice-president of Sinclair Oil & Gas Co. and head of its gas and gas products department, in Tulsa. **C. H. McClure** succeeds Fenwick as assistant manager of the company's Denver division. McClure has been assistant manager of the Tulsa division since 1958.

D. T. Fenwick

C. E. Webber

CHARLES E. WEBBER is Sun Oil Co.'s director of natural gas administration, heading a new department responsible for supervision of natural gas sales, Federal Power Commission certificate applications, gas rate filings, rate investigations, and related matters. Webber was formerly technical adviser to Sun's vice-president in charge of production. He joined Sun in 1945 following service as assistant director of the natural gas and natural gasoline division of the Petroleum Administration for War. **H. Douglas Coe** is the assistant director of natural gas administration for Sun, and **John A. Ward III** is attorney for the new group. Coe, who joined the company in 1950, most recently handled natural gas matters relating to FPC regulation, in Washington, D. C. Ward has been an attorney in the Dallas office of the southwest production division since he joined the company in 1957.

H. D. SPIRES is the new assistant district production manager in the San Joaquin Valley for Tidewater Oil Co., with offices near Bakersfield, Calif. He was formerly district production superintendent at Oklahoma City, responsible for operations in Oklahoma, Kansas, and North Texas.

JOHN A. McGUIRE assumes the newly created position of chairman of Three States Natural Gas Co., Dallas, and **William H. Hudson** succeeds him as president. McGuire has been president since 1952. Hudson has been associated with Three States as a director for over five years, and served as vice-president for part of that time before resigning to assume direct supervision of his personal properties. **Lee Van Atta**, a Three States vice-president, was elected a director.

CAPT. ROLAND GEORGE MOTT has been appointed Commodore of BP Tanker Co., British Petroleum Co.'s shipping organization. He succeeds **Commodore H. I. McMichael**, who has retired. Capt. Mott has been with BP Tanker since 1924. Since 1953 he has served in command of supertankers, and has just been appointed to command the S. S. British Queen, succeeding the retiring Commodore.

At Cities Service Oil Company's Rahway, N. J. refinery

Bitumastic Coatings outlast costly materials on tough, tide-zone piling protection

The Cities Service refinery's docking area is located on the Arthur Kill, a salt water channel with a high content of industrial wastes and debris that presents a tough corrosion problem. That's why special attention was given to the protection of sheet steel piling at the wet-dry zone.

Two types of coating systems were tried, both over sand-blasted steel; one, a new type of coating using "exotic" materials, and the other, a combination of two Koppers coatings: Bitumastic® No. 50 and Bituplastic® No. 28.

Within six months, the more expensive coating was badly deteriorated, and had to be removed, while the Bitumastic coating system was still in excellent shape—and is now protecting *all* the piling. The combination of heavy-duty undercoating given by thick, tough Bitumastic No. 50 and the sunlight and water-resistance of Bituplastic No. 28 over this base was the happy answer to the specific conditions.

The right answer to many corrosion problems can be found among the ten Bitumastic coatings, since they offer a wide variety of characteristics to suit many applications. And there are three *new* coatings in the Bitumastic line that have unique properties which you may find of interest: use the coupon below for more information. Or call any Koppers Tar Products Division District Office: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Alabama. In Canada, Koppers Products, Ltd., Toronto.

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Isn't Canada Being a Bit Foolish?

TO PUT IT POLITELY, that would seem to be the case in the light of reports that the Ottawa government is actually considering a trade deal involving 60-million gal. of Russian gasoline.

The merchants who want to bring the stuff in, and some government trade officials, contend that it would implement the agreement which specifies that Russia will spend $2 in Canada for every $1 worth of Soviet products that are imported.

This particular deal, then, would mean about $18-million in Canadian exports for $9-million in Communist gasoline.

That's a nice package and all that, but who's kidding whom?

ONLY LAST SEPTEMBER, Canada's Royal Commission on Energy bemoaned the plight of its domestic oil industry, and its shut-in capacity. It called for action that would generate more outlets and more demand for Canadian crude and products.

The Commission, without even a maidenly blush, cast envious eyes on the U.S. as a potential target for its ambitious expansion proposals—even though this country, too, had more crude and products than it knew what to do with.

Right now, Canada still has a surplus crude problem, and an abundance of gasoline, like everyone else in this wide, wide world, including us.

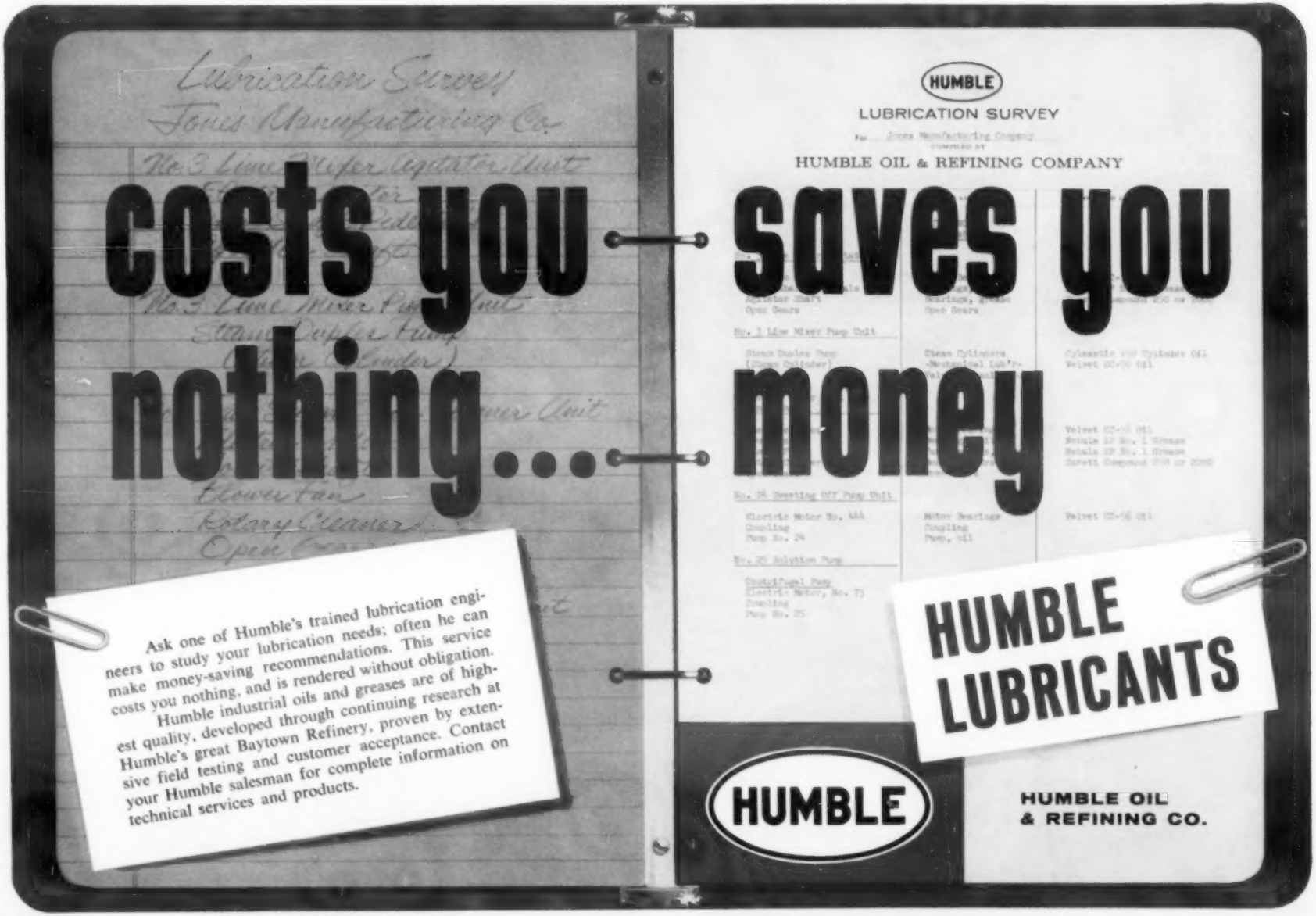
Importing Soviet gasoline, then, seems like not only another classic example of carrying coals to Newcastle, but also an oblique boot for U.S. oil men and our own good neighbor policy.

Is it being ungrateful to suggest that Canadian vendors, if they really want more gasoline, have a look at our surplus first? It strikes our mind that some pretty good deals could be whomped up in a hurry, and at pretty good prices, too.

Unofficial figures indicate that the Soviets are offering the gasoline at 15¢ per Imperial gal., delivered to East Coast ports. This is said to be slightly cheaper than Canadian refineries can turn it out themselves.

IF ALL THIS IS TRUE, who's going to benefit most? A handful of Canadian consumers who might save a couple of pennies? The merchants who might make a couple of bucks more? Or the Soviets, who will have scored another economic (and propaganda) victory by penetrating and undercutting Free World markets?

The whole thing is a bit silly, isn't it?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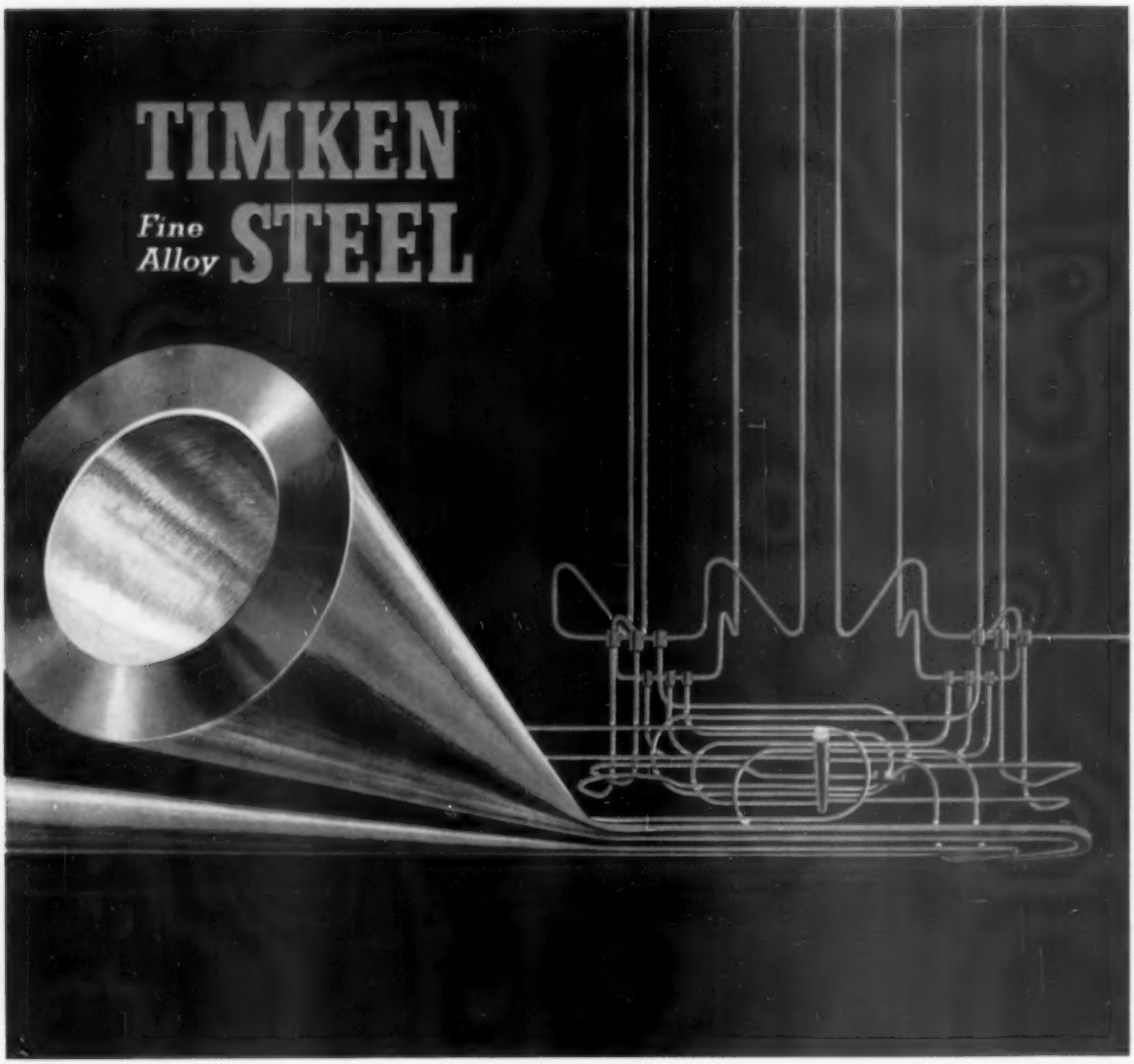

Watts cooking

Here's how they're cooking watts and keeping light bills down for customers of The Cleveland Electric Illuminating Company. In a new 250,000 Kw steam station at Avon Lake, Ohio, they put extreme pressures and temperatures to work to get more energy from each lump of coal. It's only the third power plant in the United States to crack the critical pressure barrier.

To transfer the red-hot 100 m.p.h. blast of steam from boiler to turbine with ordinary carbon steel would require piping of fantastic dimensions —with walls three feet thick—and from the top of the furnace down to the turbine it's a seven-story drop. The problem called for seamless tubing that was strong and tough—a super stainless steel.

The piping contractor for the new plant, The Pittsburgh Piping & Equipment Co. asked the Timken Company to produce AISI type 316 main steam piping for this extremely rugged high temperature, high pressure service.

Timken Company metallurgists specified a carefully balanced alloy content, made in the most modern electric melting furnaces. That's the key to producing pierceable super alloys. The result was stainless steel tubing with wall thickness light enough to permit a much lower cost. As for strength, the high alloy content of this steel should enable the tubing to carry red-hot steam 24 hours a day —for 40 years!

Whether your steel problem is size, weight, pressure, temperature, oxidation, or all of these things (as this problem was), call in Timken Company metallurgists! Their 40 years of experience in making fine alloy steel will give you a fast, low-cost solution. ***When you buy Timken steel you get . . .*** *1) Quality that's uniform from heat to heat, bar to bar, order to order; 2) Service from the experts in specialty steels; 3) Over 40 years experience in solving tough steel problems.* The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.*